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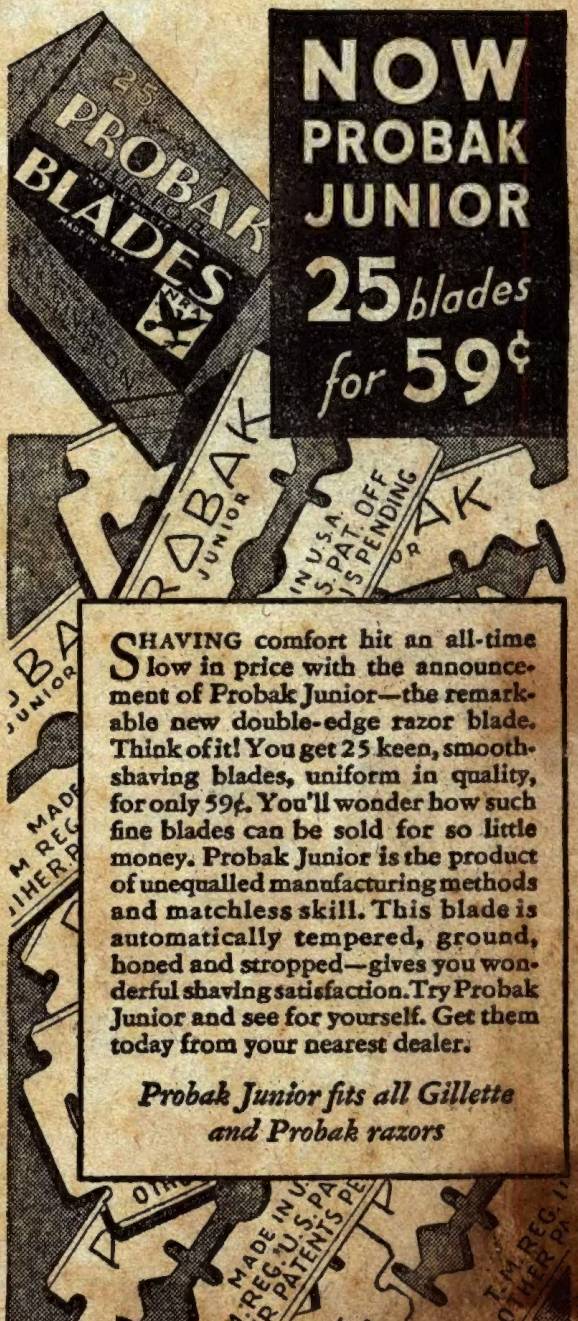

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AMAZING STORIES

Science Fiction

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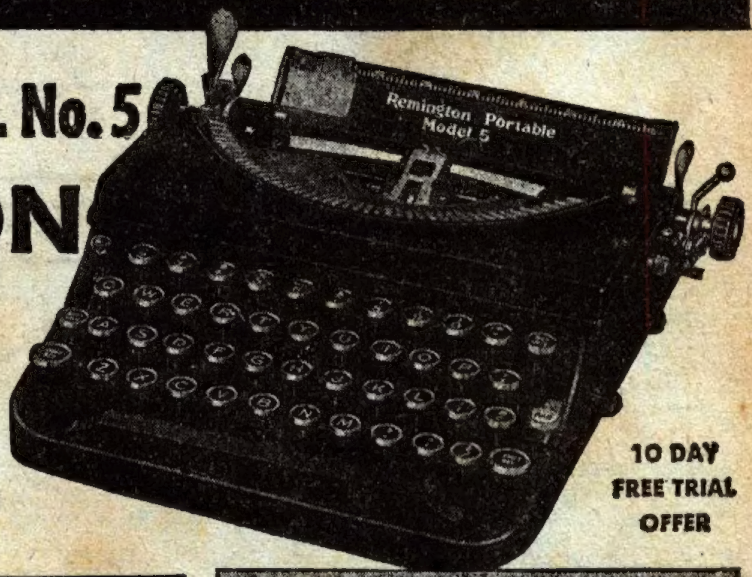

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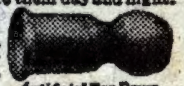

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T. O'CONOR SLOANE, Ph.D., *Editor*
Editorial and General Offices: 461 Eighth Avenue, New York, N. Y.

Extravagant Fiction Today . . . . . Cold Fact Tomorrow

Our Ocean of Air

By T. O'CONOR SLOANE, Ph. D.

THE approximately spherical earth on which we live is about 8,000 miles in diameter, a little less at the poles than at the equator and if the number of cubic feet in its volume are multiplied by 400 the product will be a rough approximation to its weight in pounds. Pounds would be an infinitesimal unit in which to express this factor. Dividing the number of pounds by 2,000 would give the result in tons.

Just as an orange is often shipped wrapped up in paper, so is our earth wrapped up in an atmosphere of gases, principally nitrogen and oxygen and a few others, some of the latter in very minute proportions. All of these gases are perfectly elastic. The earth holds them securely by its gravitational attraction. This produces an atmospheric pressure of about 14.7 pounds per square inch at the surface of the earth which varies repeatedly and locally. This attraction operates like a compression pump for as we ascend from the surface the pressure is less until at the summit of the highest mountains, verging on 30,000 feet or nearly six miles in height the air is too rarefied to adequately support life. At one-third of this elevation people often suffer quite seriously from the rarefaction of the air if they run a short distance. We live in the bottom of an ocean of air just as some fish live at great depths in the ocean of water. The difference between the ocean of air, as we may term our atmosphere, and the ocean of water is that water is almost incompressible. A cubic foot of water at a depth of six miles weighs almost exactly what a cubic foot at the surface weighs. A cubic foot of air at the surface of the earth weighs more than the same volume of air at a height above it.

The barometer is used in one form or another to indicate the pressure of air, which is its weight. The word bar-

ometer is derived from the Greek and means weight measurer.

Let us suppose the earth to be represented by a globe eight inches in diameter which is about an inch to one thousand miles of the real earth. To be accurate, we have seen that it should not be perfectly spherical, but a little over one hundredth of an inch greater in equatorial diameter than in polar diameter. The highest mountain would be represented by a thin piece of paper, about one two-hundredths of an inch thick. The atmosphere, as we rise from the surface of the earth, becomes more rarefied. For ordinarily constituted mortals an elevation of two miles is rather trying, if any bodily exertion is to be practiced. This elevation would be represented by a piece of paper one four-hundredth of an inch thick. These figures are of interest in reference to the atmosphere and the stratosphere. The earth is inclosed in a very thin envelope.

In the determination of heights, it is fair to say that the barometer in one form or another is the great reliance, and it is a rather poor one. It is a case where the worst is the best. The obvious way to accurately determine a height would be by some system of triangulation. A level base line could be measured on the ground and angles taken corresponding to the summit of the object whose altitude was to be determined, an angle from each end of the line. A simple trigonometrical calculation would give the height. To determine the distance of the moon, the diameter of the earth can be taken as a base line and the elementary trigonometrical calculation gives its distance, about 238,000 miles. For the distance of the sun the corresponding calculation can be used, giving about 93,000,000 miles. In each case the diameter of the earth gives eight thousand miles approximately as the base line.

But to decide on how high a balloon has risen, how high a particular airplane has gone, triangulation cannot always be used, and the height is generally accepted as given by taking the air pressure in the balloon or plane. The air pressure is subject to perpetual change, which may be as much as or more than one thirtieth of its range. The air pressure at the surface of the earth should be periodically taken at the exact times that the pressure is taken by the aeronauts. This even is not exact in its results.

Airplane records of height attained, stratosphere records of ascent twenty miles or more "into the blue," depend on the registering of the air pressure by a barometer of some kind. When of self-registering type the earth-level pressures are taken as often as judged necessary.

Water boils at various temperatures varying with the pressure it is subjected to. In steam boilers the pressure has been so high as to produce a heat that would almost soften the metal they are made of. This principle of the boiling temperature of water has been used in determining the height of mountains. The temperature of boiling falls as the elevation increases. On the top of Pike's Peak there would be trouble in boiling beans, because the water would not be hot enough. A special apparatus has been made for determining the boiling point of water, and since this temperature falls as the elevation above the sea level increases, the apparatus has been used to determine the height in climbing mountains.

We often hear the expression "the ocean of air," yet this is a poor analogy The air is perfectly elastic or nearly so, the water of the ocean is almost incompressible. As we go higher into upper reaches of the air we find that it is much rarer. If we descend in a mine we will find it denser. It would exhibit

this latter change in a higher degree, if, in descending a shaft a quantity of the earth was not above us, thus changing the pull of gravity diminishing and reducing its attraction upon the air. This pressure reducing-effect may fairly be termed minute for any depth yet attained by man, but it exists. Now compare the air with the ocean. Here we have a virtually incompressible fluid. If we could descend in it to the depth of even a mile the change in pressure would be enormous and fatal before a small inconsiderable fraction of that depth were reached. A diver in his impervious diving suit has to be supplied with compressed air, and can only go down a trivial distance. A very few feet of descent into the water may rank with an ascent of thousands of feet into the air.

A mile of ocean depth gives a high degree of change of pressure. It proone and a quarter tons per square duces an increase in pressure of about inch, while the highest pressure our miles upon miles of atmosphere can give us is less than fifteen pounds to the square inch. In round numbers the square inch of water gives a pressure of a little less than half a pound per foot of depth, so that atmospheric pressure at sea level would be found in water at about thirty feet depth. Man can climb a mountain four or five miles in height, but the fish can only endure a change of depth of immersion in water of a small number of feet.

Fish are able to endure what for man would be unendurable pressures. The depths of the sea have been penetrated in an impervious diving caisson, supplied with air at natural pressure, and fish have been seen in abundance at the lowest level attained. It is quite a feat to go down 2,500 feet in water with the elaborate diving appliance referred to. How far down fish may exist and swim about is uncertain.

The whale is sometimes taken as an example of deep diving. Numerous instances have been cited of harpooned whales starting down in a vertical dive and taking out perhaps half a mile of the harpoon rope. In one case the animal, for it is not a fish, started with a perpendicular dive, took out over a quarter of a mile of line and came to the surface after thirty-two minutes, emerging not more than a hundred yards from its starting point. At a quarter of a mile it would have been subjected to nearly six hundred and fifty pounds pressure to each square inch of its body. It would seem that the compression of the air in its lungs might have been sufficient to prevent it from rising to the surface.

The whale undoubtedly obtains his supply of oxygen from the air. He can therefore "hold his breath" for nearly or quite an hour. His breathing is accomplished by great inhalations as he comes to the surface and then he can immerse for long periods. The fishes, with some exceptions, obtain their oxygen from the oxygen dissolved in the water, which is small in volume, as oxygen is not very soluble.

The condition of the inhabitants of the ocean, which in a metaphorical sense is their atmosphere, is exactly the reverse of terrestrial land animals. We suffer if we rise to great heights from the surface, our greatest height so far attained being some eleven miles, and this was attained when the observers were enclosed in an air-tight chamber with oxygen supply as well as air purifying apparatus within it, as more or less of the inclosed air would be breathed over and over again.

In the atmosphere in which we live there are constant changes, but this hodls only for lower layers. At a height, varying from five to eleven miles there is a distinct layer of atmosphere called

the stratosphere. It is the investigation of this region of the earth, which has led to the ascents inaugurated lately into great heights using partly inflated balloons and air-tight cars. The balloons increase in size as the height increases, in a sense representing an economy in hydrogen gas. The photographs of the balloon just ready to rise brings out this feature of partial inflation very strikingly.

There is a great distinction to be drawn between a mixture and a chemical compound. In the atmosphere there are two chemical compounds. One is water and this varies in proportion under different circumstances of locality and general meteorological conditions. The other compound is carbon dioxide of which there are three to seven volumes per 10,000 volumes of air. In open regions it is almost exactly the same everywhere—three ten thousandths of the air. The molecules of a gas are in perpetual motion, so that an active mixing process is always going on, and this is why the air has virtually the same composition wherever we go. The two principal constituents of the atmosphere are elements and they constitute the basis of a mixture which sustains animal life. In an atmosphere of nitrogen or cabon dioxide an animal would "drown."

The pressure of the air varies constantly, there are repeated disturbances, many of which we do not realize in our sensations, and which we measure by special instruments. The meteorological disturbances are endless. But when we ascend to a height of from five to eleven miles we enter a great layer, called the stratosphere, where conditions are widely different. In it there is almost no moisture, carbon dioxide nor hydrogen.

Claude in France was one of the great authorities on liquefying air and gases in general. In operating his apparatus some liquids collected in it, and he gave a quantity of the unknown liquids to an investigator, who found that other uncombinable gases were there, so that our atmosphere was shown to contain a number of unsuspected gases. These would combine with no other elements, they are now called "noble gases" for some reason or other, and have come into use in electric signs. The letter-bearing signs made up of glass tubes, showing bright red, contain neon gas ignited by the passage of an electric current. Addition of other substances always in minute quality produce other colors, but it was neon that began it.

The "noble gasses" to which refe ence is made and their relative propo tions in the air are the following:

NEON	about 1 volume in	80,000 (estimated)
HELIUM	about 1 volume in	250,000 (estimated)
KRYPTON	about 1 volume in	2,000,000 (estimated)
XENON	about 1 volume in	17,000,000 (estimated)

Then besides other gasses already mentioned there is a little ammonia, and about 1.2 per cent of water vapor. The latter varies greatly from day to day and in different regions—it constitutes the humidity of the air. The expiration of animals adds carbon dioxide and humidity to the air, while plants as their leaves are acted on by the sunlight dispose of carbon dioxide and exhale oxygen. There is also about one volume of hydrogen in ten thousand volumes of air and nearly one per cent of argon.

The Rape of the Solar System

By LESLIE F. STONE

For some time we have hoped to have one of Miss Leslie Stone's quite charming stories appear in our magazine. In this tale she deals with Pluto, the recently discovered planet, in its lonely orbit far outside of even Neptune's path and then she takes us to Mercury, the planet nearest to the sun—but we must not tell the story in advance and we promise our readers a delightful bit of reading.

NO one can know the thrill and elation that was ours on that adventurous day when Cart Ferris and I stepped within the Plutonian astronomical observatory. Words fail to express our emotions as we stood on that time-cracked floor and gazed, open-mouthed, at the giant telescope that pointed its five hundred foot barrel toward the skies; it was too far beyond our expectations.

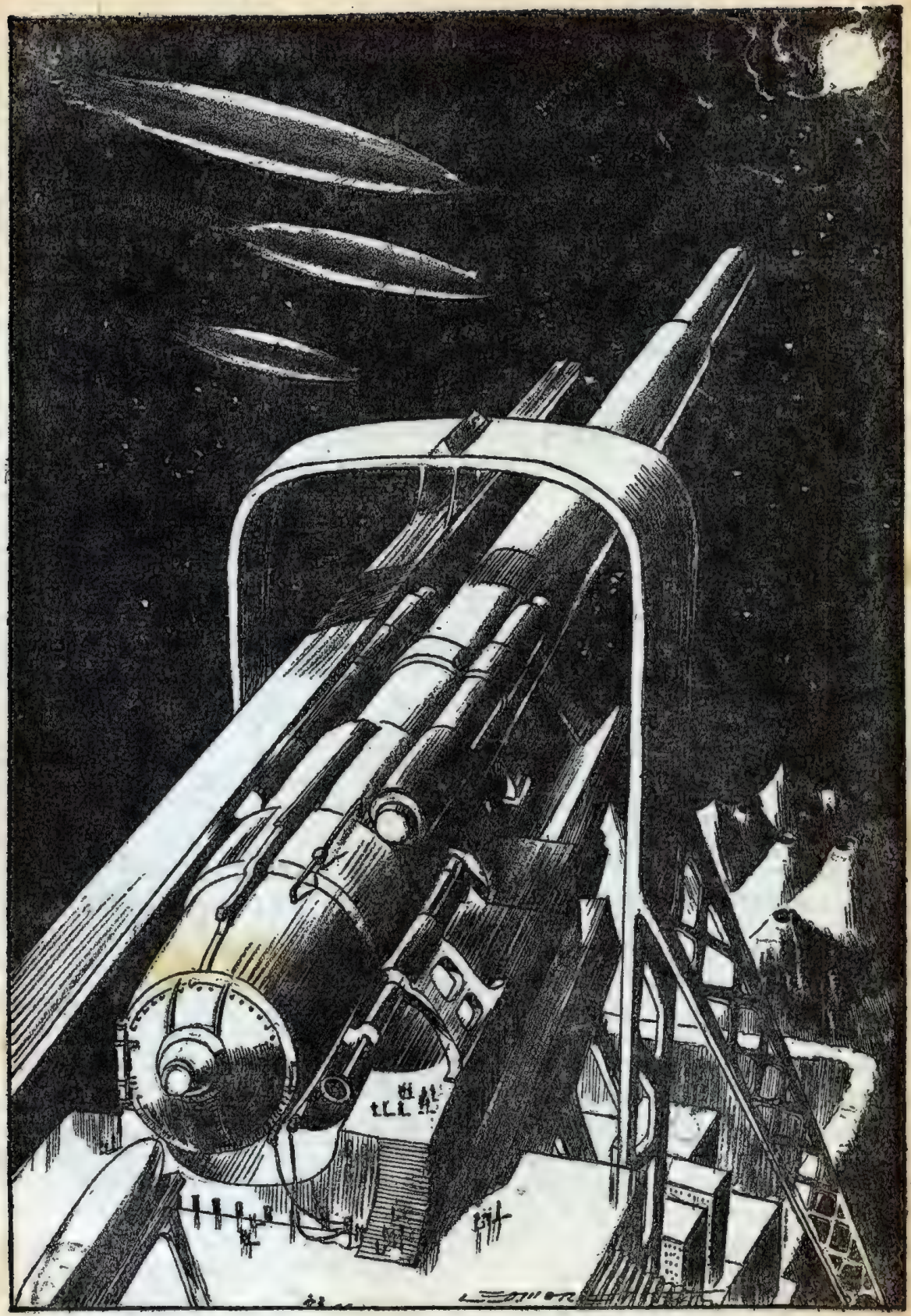
"You know what this means, Jerry?" asked Cart. "Life on Pluto? Gosh, I wish we could meet the guys that built that telescope. Look, the reflector's easily two thousand feet across! Can you imagine the sights they saw in *that?*"

Carefully, as if it were a precious jewel Cart wiped away the encrusted hoar frost that lay upon the giant mirror cracked now and discolored by untold ages. Hoar frost lay over everything of Pluto, gases frozen solid by the terrific pressure and cold. It crunched under our metal encased feet, hid the lineaments of the vast chamber, as it covered the ground outside the observatory, upon which we had accidentally stumbled.

Certainly, we had not looked for the evidences of a past civilization upon Pluto. But it was here, in all its awesome wonder.

"Life on Pluto," mused Cart, "the outpost of the solar system. I wonder if they were men?"

His words made us thoughtful as we considered the various types of life we had encountered during our years of vagabondage around the system, two foot-loose fellows with a wanderer's itch. There had been the plant-men of Ganymede, the crawling things that had spawned upon Titan, the blind-bat creatures of Io, the diabolical red snakes of Hyperion. Yes, what type of life had Pluto fostered, that had conceived this monster telescope?



Then Luna struck! Seemingly quiescent she had been building a great machine upon her surface, a machine capable of tossing huge projectiles upon earth, only 238,857 miles distant.

Bare, except for the great instrument, the room told us nothing. The mechanisms, corroded, frost-covered, that had once controlled the telescope may have responded to any manner of hand, claw or talon. But it was evident that the creatures, who had reared the great machine and had ground that immense mirror, were of great scientific and mental development. Were they men?

Our answer came sooner than we had dared to hope. Glancing about the chamber I descried the outline of a doorway etched in the hoar frost that cloaked one wall like an arras. Prying and probing with our crowbars we managed to yank open the heavy metal barrier, a heavy door eight feet high with a peculiar arch. Flashing our lights within, we stood peering into the room thus revealed, a small room.

Something had lived in here at one time, something that had lived and breathed and felt the outside chill, for in the center of the room we saw the remains of a fire! There they were still, the sticks and ashes laid upon the bare stone floor, surmounted by a small stone-hard pot held in position by a tripod.

Even now I can wonder that these mute evidences had remained through the ponderence of the centuries, but the cold had preserved them, preserved them in nature's vast refrigerator. True, a light tap would shatter them like brittle glass, but they had withstood time long enough to tell us the sad story of that lonely observatory room.

Nor were the fire-remains all the room held. Against one wall stood an immense clothes chest, and there was a table, square and heavy upon which stood several odd shaped dishes of some strange uncorrosive metal, beside a beautifully artistic lamp, all encased as everything was here, in hoar frost. And there was a pallet bed, long and narrow, its comforts gone, only its metal frame, gaunt and brittle, standing unoccupied.

ALL this we saw in the first gleam of light. Cart had gone directly to the table to pick up the dishes in his mailed hand, gingerly. He wiped away the frost carefully, holding up one dish for me to see. "Look at this carving, Jerry. It's the most . . ."

But he never finished his thought, for I was suddenly screaming his name, pointing at the thing that had startled me as I turned my flash into the opposite corner of the room.

It lay sprawled half atop a small curved-top chest, feet caught under it, arms thrown across the chest, head upon one out-stretched arm. Shrouded it was in frozen icicles that threw back our light beams in dozens of unearthly colors, but we could make out the form easily —the lineaments of a man! The last man of Pluto!

Together, as if in a trance, the pair of us tip-toed to the figure's side. Yes, tip-toed. Unconsciously, my hand slipped toward my head before I recalled that my hat-holder was enclosed in the helmet of my space-controller.

"A man," breathed Cart softly, "genus *homo sapiens* . . ."

He got down on a knee and trained the flash upon the figure's face. It was difficult to determine the form of the features under its covering of frost. "Shall-ll we wi-pe off the fro-st?" I wanted to know, entirely unashamed of my awe.

Cart, who usually made decisions for both of us, knelt in silence several moments as he studied the body. "Guess it won't hurt. This fellow's frozen stiffer than a block of ice. S'funny thing. Must have fallen here and frozen to death . . ."

"You don't think it's a statue, do you?"

"Hum—might be, at that, but s'funny place to put one, if you ask me. Somehow—I've the feeling that it was alive once upon a time. You know, if a man died in a sub-zero temperature, and it kept getting colder and colder there isn't any reason why he shouldn't continue to exist like this. You know, back home, they still find mammoths frozen in glaciers, meat fresh, hair in place, and maybe 25,000 to 50,000 years old for all we know. Come on, kid, we'll take a look . . ."

It was an eerie job removing the scintillating icicles from that face, a face a little blurred as the flesh had sunk and shrunk through the ages. But blurred though it was, we could not miss the serenity of its beauty, the clean symmetry of the high forehead, the straight sweep of the high bridged nose, the fine molding of the lips, the clean-cut line of the jaw. It was the face of a man of strong purpose, of high intelligence.

The color of the skin was like old, well-tanned leather, but whether the color was due to its frozen state or was natural, we could not tell, no more than we could guess at the color of the eyes beneath their closed lids, set in sunken sockets. The hair, some of which came away with the frost, was as white as driven snow, as were the curved eyebrows, and the remains of a flowing beard.

"He was an old man when he died, Jerry, but I wonder why he died here, stretched across this chest instead of in that bed over there? Looks like he was still hale and hearty when he passed out . . ."

"Maybe he died protecting that chest from someone—or something . . ." I put in, and then realized how silly my words sounded as Cart answered.

"Sure, and in that case the chest would be gone. I guess, when he felt the end coming, he merely crawled over here—to caress the most precious thing he possessed . . ."

"HUH? Say, in that case don't you think we ought to take a peep-see, and find out what was so precious about it?"

"Sure. Here—give me a hand, see if we can move him . . ."

Gently, so as not to break the brittle body we partly lifted it. Cart shoved the chest aside, and then, with utmost care, we lowered the body to the floor. However, due to the position in which it had frozen, it could not lay flat, and rather than take a chance that it would crack in two, I got the pot from the fire place, and we put that under the breast and head so that the old fellow remained in the same position in which we found him. Then we turned to the casket.

It was highly carved, in bold relief. Connoisseurs who go in for that sort of thing have since raved over the workmanship displayed, the beautiful simplicity of its lines, the delicacy of its artistry, but Cart and I were only curious about what it held that could have been so precious to the old man.

"Looks like some kind of writing on it, Jerry. Funny looking stuff, hieroglyphics of some sort. And here's a man and woman with arms about each other. But wait—what's this . . . ?"

I, too, was looking. It—it looks like a drawing of the solar system, Cart."

"Right. Look, every planet and satellite, according to size and orbit, even the moons. But wait—no, it's not the solar system after all—see, there's ten planets, one beyond Mercury, and another one between what could be Mars and Jupiter, none where Pluto is. No, this can't be the solar system after all . . .

Let's puzzle it out later. Look and see what's inside."

To our surprise, for we had expected it locked, the chest opened to our touch, stiffly and creakingly to be sure, but it opened.

Training our light beams within we stared in surprise at the chest's contents, hundreds of paper-thin sheets of a copper-colored though untarnished metal—covered with the same strange hieroglypics as on the outer surface of the casket.

"Records . . ." I said with some disappointment, "nothing there for us."

"We don't know, Jerry. Just think—if it's a history of Pluto—what a find!"

"Yeah—but have you thought about reading them?"

"It's been done before, you know—archæologists have deciphered several dead languages—of course, we need a key . . . . Say, look—here's the same planetary system again." As he spoke he was gingerly lifting several of the sheets out of the chest, spreading them apart.

The one he held before me was, as he had said, a duplication of the drawings on the chest's top. These were done in color, etched into the indestructible metal, but in addition to the drawings were word-terms, one beside each planet.

"And look at this, Jerry. THIS IS THE SOLAR SYSTEM!"

Excitedly Cart held up the second sheet of inscribed metal. Sure enough, there was the solar-system in life—each planet neatly done, according to size, color and orbit, nine planets in all.

"I get it, Cart, these people, this guy's race, came from another star system and settled on Pluto . . ."

"Yeah . . . ?" But why Pluto—nothing here to invite life—wait. Look here, Jerry. See this? I could swear that the names are the same. See this one? It corresponds to the first planet on one map, the second on the other. And see—it's the same with the other planets except the fifth—and here, in the second map—why the fifth is last!"

"JERRY. Good Lord, man do you know what this means? Why, according to this, Pluto once occupied the orbit now held by the Planetoid Belt! Scientists have long been in a quandary concerning those fragmentry aerolites, some *pro*, some *cons*, the *cons* practically carrying their point* This is a discovery, Jerry, and yet—gosh, it seems too immense, too impossible . . ."

"Aw, you're jumping to conclusions. Possibly when these guys came from their own solar system, they just duplicated the names of the planets of their own system. See, there's ten planets in the first map, and only nine in the second . . ."

"That may be so, but astronomers concede a possibility of an intra-Mercurian planet, you know. They've even given it a name, Vulcan, though no one has ever found it. Perhaps, at the time Pluto moved out of its orbit between Mars and Jupiter, Vulcan dropped into the sun."

"Well, if Pluto changed its orbit how d'you account for the planetoids? Sounds like a lot of hooey to me . . ."

But Cart was not listening. He was running through more of the metal sheets, laying them on the floor in sequence so as not to disturb their order. I looked on uninterested. After all, what was there in those unreadable sheets for us? How could any one read them without a key? Of course, I am

* There has been much controversy regarding the theory of the Planetoids, and at first it was believed that they might be simply fragments of an original large planet which had been torn to pieces by an explosion. If such were the case, the different parts in their orbits around the sun would all pass through the position occupied by the planet at the time of the explosion; therefore, search for new planetoids was confined to the regions wherein the orbits of Ceres and Pallas intersect, but this was abandoned when the orbits of Eros and two others were found interior to the orbit of Mars.

not a student. I have read about a dozen books in my life-time, and certainly no dry histories. Cart, on the other hand, was different.

He was the studious kind; always had his nose in books during the long monotonous treks from planet to planet, and I knew that although he usually spoke in the vernacular, on occasion, he could put a pedant to shame. Someone once told me that he had been a language-instructor in some obscure university, and I knew he was conversant with a number of languages, and one or two dead tongues of ancient peoples.

HIS linguistic aptitude had been the means of saving us in at least one scrape. There was that time on Ganymede, among the plant-men. We were trapped, in one of their barred cages, and it was Cart's ability in learning a few words of their language from our guard that rescued us from their horrible flesh-eating tree-god. But that's another story.

Now, he startled me with a whoop. "Look, look, Jerry, a lexicon, a Rosetta stone!"

I did not get the reference to a Rosetta stone, but I looked at what he was pointing out. He held several sheets of inscribed metal for me. I glanced over them. Unquestionably, here was a glossary of those strange word-signs, and their meanings. For instance, besides a small animal, resembling a dog was drawn a number of symbols. Another was of a building, likewise followed by a few anaglyphs. In fact, the whole sheet and many sheets thereafter were covered with such deliniations. There were likewise illustrated verbs showing running men, sleeping men, hopping men, men eating, drinking, speaking, etc., as well as descriptive adjectives and adverbs, prepositions and interjections.

No wonder the old guy had crept to the chest in his last moments, he had, possibly, spent his entire life on this momentous work.

"Jumping Jupiter," exclaimed Cart jubilantly. "Give me a few months with this, and I'll read that manuscript for you." His last words referred to a bulky pile of metal sheets that had lain under the lexicon.

I nodded. "A nice tall order for a long rainy day. Better pile 'em together if you want to cart 'em back to the ship . . ."

"Want to? Man alive! Don't you understand? Don't you realize what this means?"

I shuffled my feet. "Yes, I know, but it's sorta out of my line. I guess the museums back home'll go into a big rave over it."

"You said it. Let's be on our way."

I was of a mind to explore the rest of the planet. Our cursory inspection of it from above had shown us that the spheroid was only roughly oblate, and in its sides were great crater-like depressions, similar to those on earth's moon, but Cart was all for leaving right away, to carry home those precious metal sheets.

He would have liked to take the old man whom he fondly called "Last Man of Pluto" back with us, but he realized it would overtax the refrigerating units of our space-ship *Explorer* to keep him at a temperature to insure his safe transportation. The best we could do was to leave him as we found him, sealing the heavy door of the inner room of the laboratory as securely as possible against desecration by some vandal who might come here before we could return with a proper expedition. Burying him was out of the question, owing to the granite hardness of the deeply frozen ground.

At first, during the long journey

back to earth, I tried to study the Plutonian glossary with Cart, but it was hard sledding, and, as I have said, I am not a student. I could have gone mad in the two by four quarters of the *Explorer* for all the companionship I got out of Cart; he scarcely took time off to eat and sleep, but in two months he was ready to tackle the manuscript beneath the pile of word-signs. Then, I got interested, for as he translated, I found the tale opening before us grow more absorbing. In fact, I could scarcely await each day's installment.

THE opening was sufficient to whet our appetites for more and ever more revealing, as it did, just what great secrets of the past were to be laid bare to us. We found that the first two paragraphs had been written last, after the completion of the lexicon and history. Furthermore, Cart's hunch proved correct, after all, that both spatial maps were of the same star-system, namely our own solar system!

We read:

I Garo Mofa, last of my race salute Thee. And to Thou WHO ART COME AFTER, I, in the hundredth fardo of Valda*, bequeath this testament of a great race that spawned, lived and died upon this world we call Pluto.** More and more of the Cold eats its way to my heart; no longer can my little store of coals warm by bitter flesh. Yet, I am content. Soon, I go to join my beloved Dahya, and Tan Bora, my friend, who call to me out of the mists of yesteryear.† My great work, begun ten ganul† since, is at end. Weep not for my poor remains, but for that which was once a mighty world.

It be well that man know there is no beginning nor no ending . . . that what is history to-day is history to-morrow. That man is man, and Life is ever unchanging. What was yesterday can be to-morrow. Let him take warning, if it be in him.

This is the story of the downfall of the Kar!

From whence came the Kar, the race of man, none can know, and yet there are legends among our peoples that we came from afar, from another starry-system. Be that as it may.

Many were the strifes of man, even among his own. Nations rose and fell upon our world, the fifth planet in the system of Gav, the great sun-star; and when the void was conquered, so into it was carried war, like a torch, among the worlds inhabited by man's kindred. But for the nature of those creatures she spawned, Pluto would even now follow her eternal path, now filled with her broken moons, fragments of her once proud continents, circling ever in the orbit she deserted so blithefully to revenge her legions.

Ere that ill-omened day Pluto was a pleasant world to behold, her cities sparkling gems upon the plain, vying with the pale light of Gav, her night-sky filled with the glow of ten moons. Larger by twice the size of Mars, her nearest neighbor, she was dwarfed only by Jupiter and Saturn. A proud world.

Once, when the sun was younger, Pluto had known an almost tropical warmth, but since the star had contracted upon itself through the ages, the planet had become inured to chill, her

* The term fardo is obscure, and may be ascribed to either century or some like delineation. Also Valda proved untranslatable, although a more lengthy study than Cart was able to give may reveal the true meanings. Cart suggests Valda comparable to anno Domini, describing some past historic event whereby the Plutonians calculated their calendar.

** To facilitate the reading of the following account Garo Mofa's name terms for the planets are disregarded, but for the curious I hereby name them as in the manuscript:

Duand—	Vulcan	Camub—	Luna	Sousl—	Uranus
Gebel—	Mercury	Falva—	Mars	Kulur—	Neptune
Fawso—	Venus	Megel—	Jupiter	Tufka—	Pluto
Ruika—	Earth	Xuria—	Saturn		

† The term ganul denotes "year." The Present Plutonian year is actually several hundred of our own years, but since this account deals with that period when Pluto occupied fifth place in the solar-system we conjecture that its year was then close to five of our years in duration. Thus, we will suppose that Garo Mofa took fifty years to complete his glossary and history.

people thriving and multiplying in their roofed cities.

Mars, like Pluto, was inhabited, and so also, Luna, earth's moon. And when Pluto dared traverse the void in her ships of space, these peoples, not too unlike the Plutonians, welcomed them with open arms, them, and their science. True, each race differed somewhat, in complexion, in eye and hair coloring, in stature, but beyond that all were identical, all had the same lusts, the same ambitions, the same desires.

THE Plutonians were, perhaps, an older race, owing to the fact that their world had cooled soonest. Also they had an arrogance which, at first, their neighbors saw fit to disregard, content to deal with them in commerce, mingling freely with each other. Ambassadors and treaties were exchanged, and a golden peace settled over the people of the three worlds of Luna, Mars and Pluto. Together they voyaged to the moons of Jupiter, exploring mist-clothed Venus, rock-bound Mercury and heat-shriveled Vulcan. And so they prospered and grew, side by side.

Pluto colonized her moons, Mars Luna and Pluto each sent expeditions to mine the moons of Jupiter of their vast mineral stores. Martians built villas upon their twin moons, hanging like little lanterns above their heads, and Luna established her first colony upon earth, a new world not long raised from the tepid swamps of its beginnings, wherein roved giant beasts, browsing upon succulent jungle growths.

But it is not befitting that man should look upon fair new land and not covet. The beast of the field desires blood. Bovine and equine ask but for grass. The flying things have need of the sweet, fresh sweep of air to fill their wings. The flowers lift their heads to the sun and worship. But man can not be satisfied with these simpler things. He above all requires possessions, and posseions mean land, the desire of the soil, the lust for wide acres. It is a force that lies outside himself, just as the rude mating of the animal is instinctive. Land is man's insatiable thirst, his ever unsatisfied want.

Not that the race of Kar knew this. They believed their soul's longing was filled with the conquering of Space. They did not covet their neighbor's land, the old over-populated worlds, into whose natural stores they had each delved deeply. Nor did they want of Jupiter's moons, chillily far from the sun. No, it was the fresh young earth that they desired. Not Vulcan with its shriveled rocks, nor yet Mercury, nor mist-hidden Venus. It was a fairer land—earth.

Just when Mars and Pluto knew jealousy for Luna is difficult to say. It is true their own lands were over-populated, their plains disappeared beneath towers of stone and steel; but so gradual had the transition come, that the peoples scarcely noticed, scarcely knew of it. A man and his children and his children's children could live out their lives without knowing the sight of a living green thing. They no longer depended upon crops for their food, hides for their shoes, flax for their clothing. Artificiality ruled their lives, synthetic foods replaced the old.

What brought the Naturists into being is to be questioned. Perhaps, their precursor had dwelt upon Luna or even on earth itself, and tasted the fresh fruits, feasted eyes upon wide green plains stretching for untold miles.* Whoever or whatever it was, the seed of discontent was sewn, and men commenced to demand new lands. They wanted their natural heritage of living things. They wanted freedom from the

* The Plutonian symbol gno is replaced here with mile, although unquestionably the measure of length differed somewhat.

roofed cities, they wanted warm winds in their face, they wanted new grown fruits. They wanted trees, the joy of knowing their mother earth once again. Man was crying for LAND.

AND there was earth. A fresh new land not long raised from the mists of creation, cloaked in verdant forests, abounding in fruit, berries, meat. Eden, where man could once more bask in warm sunlight.

What else but earth?

Daily, hourly, the ranks of the Naturalists grew. So strident became their demand that their rulers perforce had to yield promises. Everywhere, were they rising, demanding, insisting. Even those on Pluto's moons were demanding, their voices rising higher, ever higher.

Luna heard, and Mars. Luna grew frightened for her colonies, but Mars allied herself with Pluto. Her own ancient sea-bottoms were hidden by the great city buildings, her ice-caps had been pushed back to make room for more peoples. Thus it was that two expeditions set out for earth, one from Mars, one from Pluto. And Luna prepared to defend her rightful own.

In Space they met, three great armada, armed to the teeth. From the first, Luna's was a losing battle. Together the Martians and Plutonians drove her back, passed on to earth. Ah, how the conquerer's hearts beat at the sight of that beautiful land. But before possession must come battle. Not content with annihilating Luna's great fleet, they must needs erase her colonies from the land. And almost before they knew the enemy was upou them, the settlements were swept away, a few pitiful remnants escaping northward.

A pact between the two leaders divided earth between Mars and Pluto, Mars to the eastward, Pluto westward. The Martians settled a land they named Lemuria, the Plutonians called theirs. Atlantis, each across the world from the other, set like jewels in the middle of earth's two great oceans.

And they prospered. For a time, the system knew peace. Luna bested for the moment, lay silent, watching in ever-growing despair, the raising of new cities, the tilling of the sweet fragrant land. Truly, there should have been sufficient for all three races, yellow, black and white, but the victors jealously guarded their planet, determined to divide only among themselves, the white man of Pluto, the black man of Mars. They went so far as to track down the few yellow men of Luna that had escaped the destruction of their colonies and fled to new lands yet untouched by human hand.

Then Luna struck! Seemingly quiescent she had been building a great machine upon her surface, a machine capable of tossing huge projectiles upon earth, only 238,857 miles distant.* Overnight Lemuria was battered out of existence, and over Atlantis swept the ocean. So did Luna retaliate.

Pluto and Mars were naturally wroth. Great fleets descended upon Luna. She was given no time in which to recolonize earth; in fact, for the next twenty ganul earth was forgotten. How monstrous became that war is told in mute witness by the condition in which one finds Luna to-day, its face pock-marked by the charges that fell upon her from Mars, for Mars, likewise, built giant projectile-throwing machines and bombarded the moon from afar, even as Luna had bombarded earth.

True, spatial bombardment was not altogether reliable. It took delicate mathematical plotting to establish the trajectory of the missiles, since not only

* Luna was not so close to earth in those days, the fall was to come later.

the orbital path but also orbital motion had to be given proper consideration, but out of a hundred shots, forty were sure to hit their mark. And each shot brought death and ruin, Lunarians died by the hundreds of thousands, their cities flashing into nothingness as the explosive-loaded mines landed. Then, to complete the ruin, Pluto perfected a device to rob Luna of her air-blanket.

THIS instrument was a force that speeded up the action of the air-molecules, so that they shot away from the globe in ever-increasing numbers, the moon's small gravitational force being insufficient to restrain their initial flight. And with their going, so died the Lunarites.

And now were Pluto and Mars in full possession of earth!

With haste large expeditions were prepared, thousands upon thousands clamored for the right to be the first to set foot upon the new planet, from Pluto and from Mars. But neither fleet were ever to reach earth. Whether the Martians planned it so, or whether it was an outright act of either the Plutonian or the Martian commanders, none can say, but, as it was to prove, neither expedition gained their objective. Meeting each other in space, one from Mars, one from Pluto, both fleets burst into fire at the sight of each other, and so heavy was the carnage that not a single ship escaped, not one man lived to give a truthful explanation of what had taken place!

And, overnight the allies were enemies. Earth was forgotten again. This was to be war—to annihilation, it being evident that the system could hold but one race.

Each planet straightway assembled its forces. Pluto, during the long years of the Lunar war, had developed a new force besides her atmosphere-dispensing ray, a beam of such intensity it could sever a world in twain; while, beside her projectile thrower, Mars had now a heat-ray, capable of raising the temperature of a solid body to such a degree that its insides would boil over, would envelop the outside world in molten lava.

Mars struck first. A Plutonian moon was bombarded suddenly by projectiles, great steel clad shells several hundred feet long. Three of these proved sufficient to explode the body into thousands of fragments, spewing its fellows and Pluto with a shower of dust and ashes lasting for days.

Pluto lost no time in answering, and like Mars' first shot, her initial use of the knife-ray proved successful, cutting a long gash in Mars' side, three hundred miles long, and thirty wide.

There followed days in which neither planet scored a hit, for spacial warfare, as I have explained before, differs greatly from planetary warfare.

THEN, after days of futility, Mars got her range again, and three more of Pluto's moons exploded simultaneously, while the planet went unscathed. And again Pluto cut a wide swath in Mars' side. And she made use of the atmosphere-dispenser. The process, however, of eliminating Mars' air-blanket was a slow one, and months would pass before its effect would be felt, possibly longer, since Mars was a larger world than Luna.

But not to be outdone Mars likewise made use of her heat-ray. Not immediately did Pluto realize what was happening to her, not knowing that it was the work of Mars when mountains never before known to eject volcanic débris commenced to spout forth streams of molten rock. No one can describe the terror of those fired mountains, of the rivers that became raging,

boiling death, of outraged nature. And, to add to the awfulness were the projectiles of Mars, now biting great craters out of Pluto's sides.

Cities collapsed by the hundreds, roofs fell in, and so hot grew the ground underfoot, that the people knew not where to turn. For the nonce Mars was forgotten, but when it was realized, at last, that Mars was wholly responsible for Pluto's abject condition, the crews turned back to their weapons. Again and again they gashed Mars cruelly.

And then came respite. Mars and Pluto were drifting apart on their voyage around the sun. Soon the range became too great for either planet to make a hit. Several years must pass ere the two planets come in conjunction with each other. For a while the battle was removed to Space itself, fleets from each planet attacking each other. But they were too well matched to play at that game long, neither side gaining or losing.

Thereupon began an era of comparative peace, in which both worlds entrenched themselves, preparing for still greater measures of warfare against the time when they should next meet.

Then on Pluto came forth one of her great scientists with a plan. He proposed that Pluto should not await the return of Mars to hostilities. Instead, he wanted Pluto to track Mars down!

Had the people been in their right senses, they would have laughed down such a proposal, but maddened as they were by their losses, by their hatred of Mars, they were ready to seize upon any new idea, no matter how fantastic, if it would answer their ends. Those who sought to point out the folly of such a plot were laughed at, even killed for their unpatriotism.

The plan? Nothing less than swinging Pluto out of its orbit, transposing the whole planet into a movable body, *capable of traveling through space as a free agent!*

To accomplish this, meant turning Pluto into the equivalent of a ship of space, entailing the placement of great mechanisms that would fire rockets. By placing these rocket pits in two great circlets around the planet it was expected that the world would respond as easily as any rocket-flyer. And there followed frantic activity while this was being accomplished.

True, ere this was completed Mars and Pluto would meet again in space, but the people thought not of that; they were intent upon their self-imposed task, establishing the rocket pits, manufacturing the fuel. developing new lethal weapons with which to attack Mars when they descended upon her.

And the great day came when in the rocket-pits, lined with concrete against the inner heat of the planet, men awaited the signal for the first discharge that would throw Pluto out of her orbit.

At first nothing was felt, the planet apparently adamantine to persuasion. Then—then came a scarcely perceptible rocking. This lasted for some time. Yet nothing seemed to change, the planets round about seemed in their usual places, all serenely unaware of what was about to transpire.

And then came the jar—such a rocking and groaning. The world seemed to spin like a top, the planets beyond cavorting wildly in the heavens. People cried out in their fright, tore their hair and their clothes in sorrow, for they thought the end was upon them.

Better that it had. But now the rocking was ceasing, the groaning of the world fading away, the sun and planets settling into their places. Not entirely, however. The sun seemed restless, moving this way and that in the sky, Jupiter was trying to turn a somersault and

Pluto's moons acted queerly, unable to make up their minds whether to follow or not.

IT was done. *Pluto had departed out of her orbit!*

Words fail to describe the series of events that followed, on Pluto's descent upon Mars, rocking, rolling, an unsteady ship at best, her moons dragging behind jerkily, uncertainly held by Pluto's gravitational forces.

Soon Mars was looming up ahead, large and swollen. Stupefied she could not act or think, and a dozen gashes appeared in her sides before she recovered the shock of surprise. Then, she too began an offensive. Ah, Pluto, you had forgotten that two can play at the same game. What difference if you be near or far? Now comes your punishment in full.

But wait. What happens to the system, to the sun, to the planets? Why does Jupiter jump so erratically? What has happened to little Vulcan? Has Venus, the cloud-wrapped one gone mad? Does Luna intend to fall upon earth? And the sun! Why does he shoot those giant streamers into the void? Is the whole system to fall in upon itself?

God of our fathers! Look! Pluto falls toward Mars. Engineers to your posts. Shoot wide your rockets. Can you save us?

The delicate balance of the system had been disturbed by Pluto's unnatural action, planets teetered in their orbits, the sun reached out long arms, as if to encompass all, and in turn all the planets were pulling at Pluto, each seeking to grasp her about the middle, shake her, disintegrate her. Man felt the Titanic battle as blood rushed to his head, sweat poured from his body.

Pluto's one thought now was to return to her orbit, to undo the awful thing she had done, realizing that it is not meant for a planet to free itself. Somehow she managed to pull out of Mars' grip, to limp slowly, painfully back toward the place she had occupied during the millenniums. But for Mars' wrath she might have accomplished it.

But Mars would not have it so. Unaware of what was happening to the system, her atmosphere draining away from her, her only thought was retaliation for all she had suffered at Pluto's hands. With thousands of tons of explosives she sought to retard Pluto's progress, delaying the return just long enough to make the return impossible. And when, at last, Pluto managed to limp painfully into port, a third of her bulk gone, ripped out of her, she found two of Jupiter's moons directly in her path.

They had been dragged away from Jupiter's stewardship, and now were undisciplined runaways. Braking her progress as best she could Pluto sought to change her course, to avoid the twins that came upon her like avenging angels, intent upon finishing that which Mars had not completed, while, all the time, Mars pelted her with explosives.

Was there ever such a predicament?

At last Pluto bethought herself of her knife-ray. That alone could save her from head-on collision with Jupiter's moons. The rays were brought into play. They crossed and criss-crossed upon the two moons, slashing them into fragments; then with their rocket discharges the Plutonians shoved them out of the way.

But now their own moons were bearing down upon them. A terrific rocking throughout the world told that one moon had side-swiped Pluto, carrying away one entire continent before the rays could drive it away. Never was there such a holocaust. The havoc was unnameable.

PLUTO'S one thought was to get away. Her own orbit, filled with fragments of her moons and Jupiter's, was untenantable and she must seek another. The way to the sun was cut off by Mars, and even were it not, she could not dare the power exerted by the sun, now in wilder rampage than ever. Every planet felt it. Mercury had dropped a dozen million miles nearer, Vulcan was gone into the seething caldron, Venus weaved in her orbit, and earth's moon, Luna, had moved closer.

The only way left for Pluto was outward, beyond Jupiter, beyond Saturn, both of which strained to grasp her. That alone saved the planet. Playing upon these delicate forces, the engineers at Pluto's helm maneuvered somehow to ride the path lying between. Of Uranus she had naught to fear, for that world was entering its apogee, on the far side of the sun, and only Neptune lay in the path.

But wait! what is worse? Annihilation by her sister worlds, or annihilation by the outer cold of space? See how the sun is retreating? See how wan and dim have grown its rays. Gods—save us—ere we die!

None seemed willing to help Pluto, her own momentum was bearing her outward, outward beyond the system, deeper and deeper into the void, away from the life-giving sun, away into the black reaches stretching trillions of miles to the nearest star.

And to make matters worse the rocket fuel was growing ever lower; they could not halt!

It was Neptune who, at last, took pity. Reaching out a long arm it steadied the battle-torn planet. By husbanding the remaining fuel cautiously, Pluto managed, with Neptune's help, to effect a landing in an orbit millions of miles beyond, hoping against hope that the new place would hold.

Yet even if the new orbit proved a haven, what of the peoples, the few remnants of that once mighty race? Could they survive? Their roofed cities were laid low, every natural resource of the world had been tossed into the battle's maw. And as soon as the superimposed heat of Mars' ray dwindled away, the planet would be caught in the iron-bound hand of cold. Already people were dying upon the surface from the freezing temperatures.

Those who had the energy dug themselves into the surface, seeking to preserve themselves by burning everything burnable, but they died as flies, the will-to-live all but gone. Their leaders were no better. It was no uncommon thing to see people lie down in their tracks, awaiting the death that already had them at the heart.

Born at the outset of the Great War, the three of us, offspring of the race of astronomers, Dahya, my loved one and Tan Bora, my friend, had been eye-witnesses to all that had befallen our world. And, because we knew death was upon us, we refused to desert the astronomical tower, the last of its kind left on Pluto. There was yet a store of chemically prepared food in the chests, we had furs and a small store of fuel.

None approached our home, uncaring what became of us. Day by day we sat by the great telescope, gazing apathetically into the giant reflector at the worlds that had disowned us. We noted the changes that had overtaken the system, mapped out the differences.

Mars lay dead, its atmosphere reduced to a pitiful remnant, her cities leveled to the ground, her sides unmercifully slashed by our rays. Luna was a gutted empty shell. Only earth remained in all her full glory. Earth, the forbidden land warmed by the beautiful sun, its night lighted by dead Luna.

WE had but one consolation. We knew that man with all his many faults, his false ambitions and desires, was not, after all, dead. On earth alone were these survivors of our three great races, those Lunarites who had escaped northward, little yellow people even now seeking to find the way back to their once proud estate; black Martians who had scattered over dozens of islands when their land, Lemuria, exploded under their feet; white Plutonians, who in flimsy boats had reached either shore of the great ocean, wherein Atlantis had once stood, where only a few mountain peaks remained to point out its grave.

For long hours we conjectured upon the future of these peoples, now, perforce, returned to barbarism, cut off from their kind, their science forgotten in their effort to save themselves. Would they learn again to build great cities? Would they again conquer Space? Would they again war upon each other?

Dahya liked to dream that their future would be fairer, that dwelling upon such a hospitable world, they would imbue something of its peace in their hearts. Tan Bora was more pessimistic. He could claim for them only death and destruction. I preferred the middle road, and concluded that peace and strife would ever go hand in hand.

Dahya and Tan Bora have gone. Dahya faded away like a cut flower, although I kept her wrapped in many furs. Tan Bora died, because the will to live had deserted him, as it had deserted all the cold-ridden race. I alone have lived on, for my great work, this work that is now completed, awaiting *those whom I know will come after,* seeking the answer to the enigma that is Life.

How benefiting that it should be here, on the *last world.*

Yea, let him read and be warned—if it be in him!

THE END

Meteors and An Airplane

SOME months ago the meteors of the sky and those that fell upon the earth were spoken of in AMAZING STORIES. There is a good deal of mystery about these visitanta. They are very numerous, but are generally very small, like the smallest pebbles, and this feature is what saves us. They move with high velocity through space, but although their speed is retarded when they enter our atmosphere and are falling to the earth, they still move very fast before they reach our surface. On September 27th of the present year a shower of meteors, in brilliant incandescence, was encountered by an airplane loaded with passengers, approaching Oakland, California. There was a great display. "Whirling bits of fire" we are told flew by the plane like buckshot. One giant piece which looked "as large as a barn," came so near the plane that the pilot swerved off to one side to avoid it. It would undoubtedly have been a very small barn. This all occurred at a height of about 7,000 feet, so the meteors were moving at greatly reduced velocity. At the velocity of meteors in outer space swerving would have had no perceptible effect in avoiding it. One of the meteors exploded. Owing to their brilliancy meteors look many times their true size, which accounts for many unconsciously exaggerated reports of their size. As they pass through the atmosphere their surface layers, softened by heat, are stripped off of them and reduced to dust, and this operates to reduce their size and they often explode into small fragments. It is these phenomena which save us from many large projectiles.

This encounter of airplane and meteors is probably unique in airplaning history.

The Sunless World

By NEIL R. JONES

This is a distinctive Jameson story. It is seldom that a sequence of stories meets with such favor as has been accorded to this Neil R. Jones series. There is so much vraisemblance in the Jameson stories that it makes one feel that perhaps it would be a good idea if we were all made of imperishable mechanism with as bright a mind as that of the Professor to guide us on our ways.

Foreword

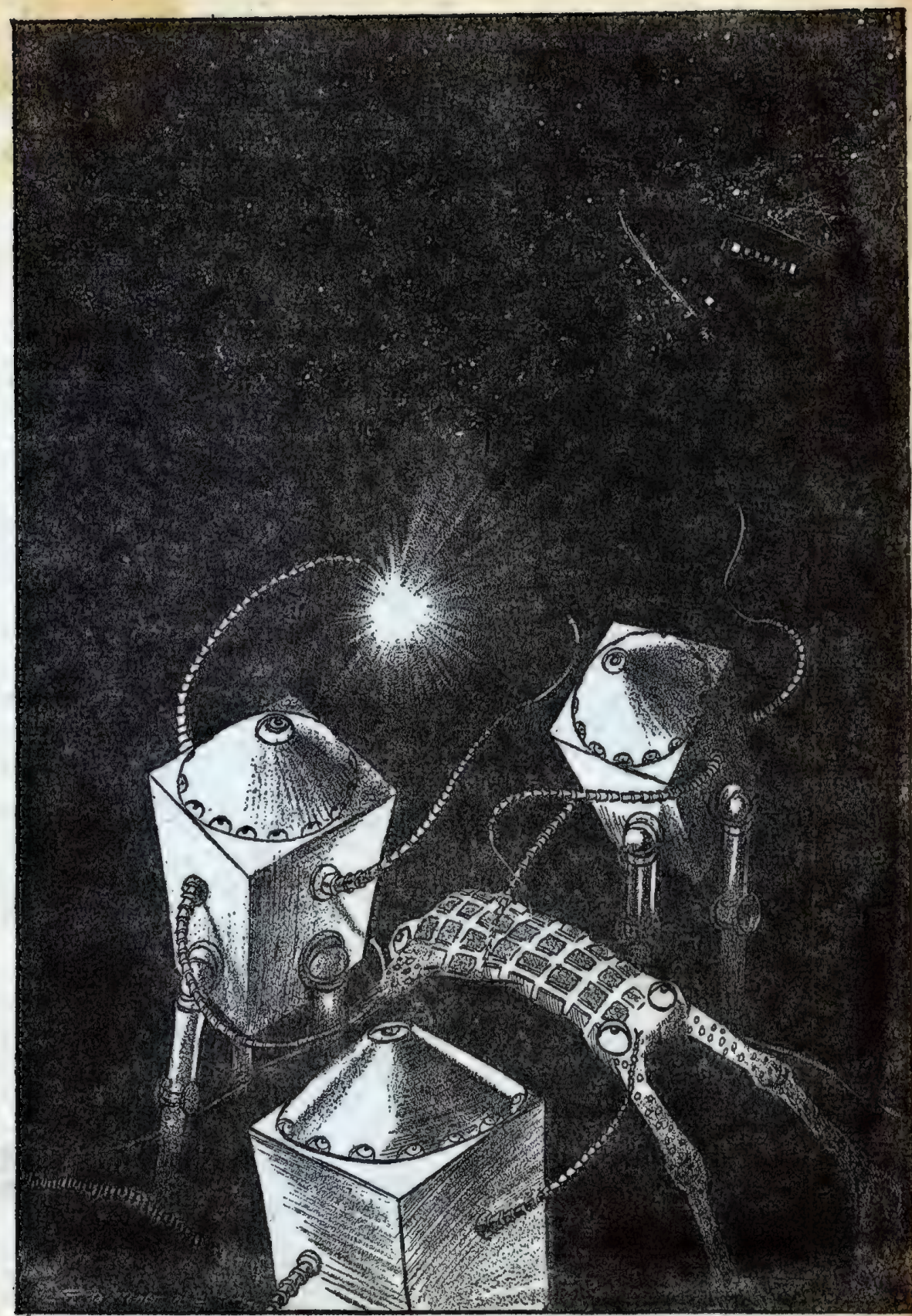
IN 1950, the book of life closed for Professor Jameson. His was a quiet death at home and in bed, his end not having been entirely unexpected. It has been written even before this that death is life's greatest adventure. How little the professor realized this fact is lost and closed to conjecture, for he looked upon his own death entirely in the light of his brilliant experiment. He had visioned immortality of the flesh rather than the immortality of life and sentient entity, a bodily preservation far beyond the vainest expectations of the Egyptian sages, measured in terms of ages.

It may have been a horror of worms, or of slow, bacteriological decay, prolonged by the artifices of embalmers which prompted him to guard his dead body from the inevitable, protecting it from the seemingly inexorable fate which is the heritage of all life. Professor Jameson was a scientist, and a dreamer as well, else otherwise he would not have eventually swerved radically from the paths of precedessors, striking out into virgin fields of unique possibility.

The inspiration, the professor later came to fully realize, was preceded by a personal desire to seek immunity from the eternal law of dust to dust. He experimented with serums first of all, hoping to parallel the results achieved by H. Rider Haggard's lost tribes of Kor, realizations which humbled the skill of the Egyptian embalmers. Partial success, accompanied by a dissatisfaction with his efforts, caused him to contemplate other modes of preservation. Probably his best theory along this line of endeavor yielded the practical solution of having his dead body immersed in a great block of transparent glass.

But glass is not indestructible to earthly elements in the face of untold milleniums. The professor reasoned that just as long as he employed an earthly means of preservation he was doomed to disappointment, for atomic structure is contagious to universal change when subjected to varying planetary conditions.

THE idea, which exploded into activity within the professor's mind one day, left him stunned, momentarily. He visioned the spectacular and uncanny, though none the less feasible, possibility



A cylindrically shaped body, approximately fusiform, tapering slightly at each end, seemed possessed of no head whatever.

of preserving his dead body in the vast depths of the cosmic void. He built a funeral rocket powered with radium propulsion, a slim, sleek, glistening rocket, as his coffin, the symbol of his funeral, which his nephew faithfully attended following his death. According to his plans, the coffin-rocket became a satellite of the earth.

More than forty million years fled by. The rocket, protected from occasional, flitting meteors by a constantly recharged equipment of radium rays acting as forces of automatic repulsion, encircled the earth constantly, like a tiny moon. Professor Jameson had accomplished his great ambition. Yet how true it is that men plan without taking into consideration the caprices of fate, that unmoved destiny which rules the courses of worlds apart.

It was one of fate's caprices which brought a party of space wanderers, machine men from a distant corner of the illimitable, star-studded heavens, into the shadow of the dying world, a planet lifeless and untenanted, a pathetic semblance of past glory, sentineled by a lonely rocket satellite revolving about the earth on its endless orbit.

THE machine men of Zor had achieved immortality by removal of their brains from organic bodies of flesh and blood to machines which knew replacement and repair rather than death. A cubed body, four metal legs, several metal tentacles and a metal, cone-shaped head enclosing the vital brain presented a weird, yet practical, aspect. Conveniently encircling the metal head were shuttered eyes, working much on the same principle as television plates, a single eye situated in the apex of the head to permit upward vision. Mental telepathy served them as a means of communication.

Professor Jameson's surprise can be better imagined than explained when he came to his senses to find himself a machine man. The Zoromes had transposed the brain from his perfectly preserved corpse to the metal head of a machine. He found himself a machine man, a convert to the ranks of these scientific adventurers of the cosmos, who journeyed from one planetary system to another, exploring the never ceasing wonders of an endless universe. Given the choice of a career with the Zoromes or a hermitage upon the dying earth, Professor Jameson chose the former course.

Now, he was a seasoned mariner of the cosmos. He had looked upon worlds brilliantly and kaleidoscopically illuminated by double suns, had fought the terrors of a barely inaccessible dimension, and he had fraternized with intelligent, thinking creatures who walked on three legs. He had accompanied his metal cohorts into the mysteries of the hydrosphere and had battled with malignant denizens at the planet's rocky core.

A return past the solar system of the planet earth had brought a marvellous insight across the ages and into time's chasm, when Professor Jameson and his comrades had experimented with a time bubble in plumbing the mysteries of earth's distant past. Having left the earth, they were speeding for Zor, homeward bound. Behind them, they left a cold, lifeless world inhabited only by forlorn, ghostly memories. But like the other machine men, Professor Jameson, too, was looking forward to their arrival upon Zor, his adopted world, which he had never yet seen.

CHAPTER I

Planets of Darkness

THE space ship of the Zoromes sped rapidly through the cosmos. To Professor Jameson's eyes, the subdued point of light, which marked

the cooling sun of earth's solar system, had long ago dwindled away into remote obscurity, outshone by the brighter and larger stars, myriads upon myriads, many light years distant.

Since leaving the solar system, the Zoromes had passed several other systems but had not landed since the memorable experiment with Zlestrm's time bubble, the Qwux from another world having met an untimely end in the dark half of a motionless earth. Vague recollections spanning the millions of years past had been aroused in the professor's consciousness by the revealing flight into time's mausoleum, the graveyard of memories.

He had learned much of what had happened to mankind following his death and interment in the depths of the cosmic void. Since leaving the earth, this recent adventure had largely occupied his thoughts. It had been vast, terrifying and inspiring, this parade of worldly events, leading up from the birth of a world to its decadence some forty million years beyond the twentieth century.

A telepathic communication from 744U-21 brought the professor out of his dream reveries, bringing his mental vision speeding out of the long gone ages of earth's history to the situation confronting them.

"We are entering a field of dead suns and worlds, 21MM392. They are heavenly bodies which have cooled long ago and are now dark and without illumination."

"And without life," added the professor a bit philosophically, thinking of the world on which he had been born.

"Well, I would hesitate to say that," 744U-21 countered. "Many strange forms of life have been found on worlds of varying conditions, even upon airless and sunless planets. I can well recall an episode in our travels which occurred preliminary to your innovation into our ranks. We encountered a race of metallic creatures who lived entirely from the rays of a sun during the period of daylight and slumped into a coma of inactivity and near-death during the darkness."

"You never related that to me before," the professor reminded his companion. "Were they friendly?"

"They were not," replied 744U-21. "And they were so numerous, catching us entirely unawares at the dawn of a new day, that they swarmed all over our bodies and we were overpowered. But by nightfall they were utterly helpless, and we escaped safely, fully satisfied with what little exploration we had made of this seemingly lifeless, cold world."

"Look," 6W-438 motioned suddenly, pointing off in the distance to a crimson ball vaguely distinguishable against the velvet background of intense darkness. "It is the central body of the system we are now entering."

"Nearly cooled but still molten," 41C-98 observed upon careful examination of the huge sun. "Once upon a time it must have been a blazing, super-heated body."

A DEEP, blood-red orb, it shed scarcely any light at all and was sprinkled profusely with small, dark spots, the higher areas which, reaching off into space for several miles beyond the main body, were cooled and darkened.

"Watch the detectors close for dark worlds," warned 6W-438. "We want no collisions."

"The detectors are working perfectly," was 20R-654's reply. "We shall pass through the system on a general plane with the orbits."

Directed by 20R-654, the space ship was safely steered through the orbits of several of the nearer planets, while the

remaining eighteen machine men remained at their posts, or looked through the telescopes at the huge, cooled sun they were passing. The planets were picked out by the detectors which automatically designated their positions, their speeds about the parent body and their proximity to each other. As was the usual case, the machine men found that the outer planets of the senile solar system were spaced farther apart from each other than were the planets which formed the inner circles of worlds.

The dull red orb grew small and indistinct behind them. The machine men stared at a near by disc of blackness against the star sprinkled bowl of the universe. It was what they believed to be the outermost planet. The dark disc dwindled behind them as the space ship, under the able direction of 20R-654, once more returned to its higher speed, the fantastic rate of travel employed only in the abysmal immensities of vacuum between systems.

A mental cry of excitement issued from 41C-98.

"Another world ahead—a small one! We were wrong! That cooling sun has still another planet, but it is so far away!"

"It seems incredible," said 744U-21. "The sun would exert but little force upon it at this distance."

Yet the detector indicated a body not far ahead of them, a body of planetary dimensions. Telescopes were instantly trained that way.

"Diminish speed."

744U-21 consulted relative detectors. The planet's size as distinguished through the telescopes was greatly at variance with its bulk as evidenced by the detectors. He peered once more through a telescope. Puzzled, he again examined the detectors, testing one by the actions of another, finding the planet's weight and gravitational attraction. He looked long at the proximity detectors, examining them as if he almost believed them to be incorrect. He turned to Professor Jameson.

"21MM392, I cannot quite make this out. According to the detectors, this world we are approaching should be of small proportions, yet it looms large in the telescope like a gigantic world."

"A case of unusually light density," offered the professor.

"I thought of that," replied 744U-21, "but in proportion to its size, it will be the lightest planet I have ever come upon in our travels."

Professor Jameson watched the looming disc which blotted the glowing points of star-dust from sight like a cloud of cosmic débris in the Milky Way. But this obstruction was no dense, fringy, cosmic cloud; it was a perfect circle of black, a looming planet. The professor was familiar with trick variations in planetary density. Even in his own earthly life, men had known that several of the outer planets of the solar system lacked the density of the earth, and they had also known that the density of many stars assumed the astonishing weight of several tons to the cubic foot.

Yet here apparently was a case just the extreme opposite of excessive density. It seemed impossible that the huge world could weigh so little. To the professor's knowledge, the detectors had never yet failed, and he could not bring himself to doubt them. There existed some other explanation to this paradox. 41C-98 broke in upon the professor's thoughts with a startling announcement.

"IT is not a plant of the dying sun! It has no orbit! The world we are looking at is traveling on a straight line, headed directly for the planetary system we just left!"

"The system will capture it as one of its own worlds," 6K-438 suggested, "or

perhaps there may be a collision with one of the planets or the sun itself."

Excitement and intense curiosity reigned in the space-ship of the Zoromes. From where had this cosmic wanderer, so low in density, come, and what would occur when it entered the planetary system of the dying sun? The speed of the wandering world was gauged and found to be comparatively slow, yet none too long a time would find it shooting among the worlds of the near by, planetary system. A rapid examination proved that no other bodies, such as sister planets or satellites, accompanied it. For a moment, the professor had wondered if two planetary systems might not be approaching each other. But the world they had discovered, given close inspection by the Zoromes, was found to be a solitary wanderer of the cosmos.

The machine men decided to land and discover more about this large world and its light density. The wandering planet loomed large as the space ship from Zor slowly settled upon the dark, desolate surface. There was not the slightest vestige of atmosphere. The machine men prepared to disembark and explore the strange world. Reminiscent of the near-tragedy they had encountered in the dark, biting cold of earth's perpetually dark hemisphere, the machine men had equipped their metal heads with temperature equalizers, an extra partition of metal, which fitted so tightly over their peaked heads that it was scarcely noticeable, possessing transparent slots for the numerous eyes of the machine men.

744U-21 directed half the machine men to remain with the ship. The rest were divided into exploration groups. Professor Jameson found himself with 6W-438 and 34T-11. Leaving the space-ship, they played their body lights slowly about them. It was intensely dark, the scintillating brilliance of the fiery, clustered stars alleviating the stygian gloom of the lonely world to no appreciable extent.

AN absence of hills and mountains, on this part of the strange globe, was obvious as the three Zoromes made their way cautiously from the side of the space-ship. The ground seemed fairly level, yet it was rough, craggy and calcareous. The professor experienced a lightness of gravity, which he scarcely expected on a world of such massive size. He bent over and picked up a large chunk of rock which he examined closely. He threw it down, more puzzled than ever, for the rock was of high density shown by its inertia, as dense as if it had been a part of the earth. Vague suspicions commenced to materialize in the professor's mind concerning the nature of this paradoxical planet. A possible explanation was asserting itself, when a cry came from 34T-11

"I saw something move over there!"

"The flickering shadows made by your lights," said 6W-438. "They are especially sharp and evident here, because there is no atmosphere to refract the light."

34T-11 seemed unconvinced by this explanation, and all three machine men kept a closer watch about them. The ground was sloping perceptibly inward. When the professor looked around at the distant space ship, its subdued lights were but partly visible. The next time he looked, he saw only a low rim of rocklimned in dark relief against the background of stardust.

"We are entering a shallow bowl," said 6W-438, indicating the surrounding rim of darkness which was gradually rising to make the sky a great, circular plate of diamond-studded velvet.

They threw their lights ahead of them. Dim, flickering shadows jumped out of

the beams of brilliance. 6W-438 emitted a mental ejaculation of surprise, this being the only comment the machine men had any opportunity to voice. From out of the darkness, an unknown danger leaped upon them, piling upon them and bearing them down. The machine men struggled with the gripping creatures.

Strange, rasping noises grated against the professor's metal body, and he felt himself staggered by the impact and force of several bodies. It seemed that there were many of the invisible assailants. His tentacles curled feelingly around the encumbering things which had forced him off his feet. The tentacles tightened and contracted with the strength and grip which metal alone can exert.

FOR a moment the professor felt a subtle resistance from hard, bony exteriors, and then he felt his tentacles crush this resistance amid a wild, frantic threshing of the mysterious, attacking creatures that had borne him down. They hung suddenly limp. What fear the machine men may have entertained, when these assassins had leaped upon them so unexpected from the dark, were now dissipated on learning that these creatures were vulnerable.

Others came to pile upon the professor. He was now more familiar with the size and shape of his invisible opponents, and he dealt with them rapidly and passionlessly. One of them he picked up and snapped into the airless void surrounding the dark world. The others he either crushed in his metal coils or else kicked away from him.

The strange menace of the sunken bowl suddenly melted off into the darkness as quickly as they had come, leaving the three machine men with the scattered remains of several inanimate forms which lay crushed from combat with the formidable advantages of the machine men.

"What are they?"

The question evoked in the mind of 34T-11 was also entertained by his two companions. Professor Jameson examined the nearest of the dead creatures, turning the hard, glistening body over and over. It was one of the simplest built, through strangest forms of life, he had ever seen. A cylindrically shaped body, approximately fusiform, tapering slightly at each end, seemed possessed of no head whatever. In fact, the professor was at a loss as to how to distinguish the position the creature assumed in locomotion, for there appeared to be no up or down. Each end of the body terminated in a pair of double-jointed appendages which were suggestive of upright stature. Queer, bulging knobs at the base of all four appendages appeared to be optics. There were eight of these eyes, four on each side of the body. Both appendages and body was sheathed in black, bony armor which the professor might have been mistaken in believing that it extended clear through, had he not crushed a few of the weird creatures in his metal embrace.

That they existed without the use of heat and respiration was quite apparent, living as they were, unprotected in the chill, airless void surrounding the planet The machine men could find no mouths. How did the things subsist? Another inexplicable feature of these sentient space-dwellers was the soft inner sides of their appendages covered with rough, porous discs, cup-shaped in appearance. 34T-11 suggested that they were used for gripping purposes, for climbing, but the professor was inclined to believe that they were too fragile for this.

"Where did they go?" he queried.

"They hurried in the direction opposite to the one from which we came, when they found we were getting the

best of the fight said 6W-438. "My lights were on them."

The three Zoromes hurried to the center of the basin where the concave slope came to a termination. A round, dark cave's mouth greeted them. Without hesitation, the professor led and his metal comrades followed. The cave broadened, and for a considerable distance the three machine men followed a spiral tunnel leading downward. They saw none of the strange inhabitants who had attacked them. The tunnel gradually straightened out, yet always it led downward toward the bowels of the planet. The floor of the rocky passage was smooth, as if worn so by continuous travel. Occasionally the monotony of one direction was broken by a sudden turn or a series of spiral ramps.

PROFESSOR JAMESON figured that they must have come a long way. They were miles beneath the surface, when the tunnel broadened into a wide cavern. In the glare of their lights, they saw several of the planet's inhabitants jump and run away. Like phantoms, they disappeared from sight in the brilliance of the machine men's lights. They were seen to run, jump and be whisked out of sight, as if they had suddenly leaped into a cloak of invisibly. It was 6W-438 who explained the illusion.

"They are jumping into some kind of a hole."

Professor Jameson ran in the direction where the headless creatures were fleeing for refuge. He stopped just in time at the brink of a dark abyss, as one of the creatures gave a leap into space ahead of him and disappeared into the impenetrable darkness below. The professor's lights revealed a farther side of the pit several hundred feet across the cavern.

At the brink, the professor leaned over so that his lights might shine upon the bottom and reveal what had become of the space-dwellers who had leaped fearlessly into the broad cavity. He received a severe jolt. The beams shone for a considerable distance into the pit and then became lost in interminable nothingness.

"I can see no bottom!" was the professor's surprised exclamation as 34T-11 and 6W-438 joined him. "The pit just keeps on going beyond range of the lights!"

"Did they jump to their deaths to escape us?" queried 6W-438. "They seemed more afraid of us in their simple minds than of this subterranean chasm."

"They possessed no wings!" added 34T-11.

"Wings would do no good here," the professor reminded them. "You forget the absence of air."

"21MM392! Step Back!

The cry issued from the brain of 6W-438, laden with concern and feeling of impending peril. Simultaneously, the professor left a subtle shifting of the ground beneath his feet 34T-11 clutched at him frantically as the professor's swift glance revealed beneath his feet a widening crack in the ground which spread beneath 34T-11 also. Their combined weight had weakened the overhanging rock which was sliding rapidly over its lower strata into the yawning abyss.

The two machine men made a futile, desperate effort to cling with their tentacles, experiencing a sickening, despairing sensation as their tentacles scraped against bare, smooth stone. With the speed of thought, a tentacle lashed out from 6W-438 just in time to catch 34T-11. One of the professor's tentacles was still locked with his companion's, and their rapid slide was broken, leaving

them dangling over the pit's rim on the tentacles of 6W-348, who lay flat on his metal body.

"Climb up—quickly!" he urged them.

34T-11 and 6W-438 strengthened their holds with two more tentacles as the professor scrambled up their metal bodies. He climbed upon the ledge beside 6W-438 and reached down to aid in lifting 34T-11.

He scarcely realized what happened next, it came so suddenly. All at once he found himself hurtling through the blackness, his lights spinning a dizzy pattern about his falling body. Once, it flickered across a cubed body, and the professor knew that he was not alone. Any second he expected to be dashed violently against the bottom of the pit, but as his acceleration increased and there came no contact his fear became mixed with surprise.

"21MM392!"

It was 6W-438. The professor returned his call and also communicated with 34T-11 whose body fell straight instead of whirling like those of his two companions. He shone his lights upon them.

"More of the pit's edge broke off!" he cried. "I saw it behind you as you lifted me up!"

Expecting every remark to be their last, the three falling machine men commented desperately on their situation.

"Where is the bottom?"

"Look!" cried 34T-11. "See where our lights shine! The pit is broader here!"

"Where are those things that jumped in here ahead of us?"

At sickening speed, the three Zoromes shot downward, ever deeper into the bowels of the strange planet they had come to explore, expecting to become inert junk heaps any moment. Seconds seemed dragged out eternities.

34T-11 edged closer to 6W-438 in their fall so that he might check the latter's rotating motion. In turn, the professor's whirling body was also brought to a vertical halt. All three joined tentacles and fell feet first.

"I CAN see bottom!" 6W-438 claimed.

All three Zoromes peered downward. Sure enough. A growing brilliance rushed upward, rapidly becoming wider in proportions until it engulfed the entire pit. With dizzying speed, they whirled into it. Collecting his bewildered senses, Professor Jameson saw that the walls of the pit were naturally luminous, extending distantly on all sides. 6W-438 had been wrong in his assertion that they were approaching bottom. The pit walls fell away below them to a mere pin point of convergence, a pin point which remained fixed as they continued their fall, never growing larger.

Remembering his earthly life, the professor was impressed with the similarity of this endless fall with standing on the front of a speeding locomotive and watching the distant convergence of the never ending rails. Would their fall never cease? It was unlikely that this pit continued clear through to the other side of the world. The professor was commencing to lose a bit of his previous scare. Why had the creatures of this dark, dead world jumped so daringly into this bottomless abyss?

Professor Jameson became aware of a slight strain on the tentacle of 6W-438. It was his first rapid intimation that something was happening to them, that there was a change. A rush of faint sound whirred by, becoming louder.

"Atmosphere!" exclaimed 34T-11. "Air at the bottom of this place!"

"Bottom?" echoed 6W-438. "I see no bottom, but you are right about the air."

The atmosphere became denser and rushed past them so madly, that it was with difficulty that the three machine men clung to each other in the buffeting hurricane of their passage. Professor Jameson was wondering how much farther the pit would continue now that they had plumbed a great part of its airy depth. Was this the last air of the dying planet, and did the creatures, they had come upon, live in these depths, enabled by evolution's adaptable cycle to walk upon the dead, airless surface?

There were many things which puzzled the professor and to which he did not feel inclined to give sober consideration considering that at any moment they might be smashed to bits by the terrific speed of their fall. How many miles had they already fallen he did not dare guess, but if the inner planet below the crust was at all molten they were fast approaching their doom.

Strange, altered sensations were affecting the professor. He sensed a vague illusion that, instead of falling, he was being shot steadily upward as if aided by an invisible power. Upward? He glanced at the walls of the broad pit which were shooting past at tremendous speed. No, there had been no turning in their course. They were still falling in the same direction, yet that disquieting feeling, which made the professor feel that he was being thrown upward, would not be denied. The atmosphere became less dense. This, too, was puzzling.

Recent suspicions in the professor's mind flared into conviction. They were falling upward. Of that he was certain. It was no illusion. He turned to his metal comrades with a startling announcement.

"Do not fear striking bottom. We have passed the bottom.'

"Passed it?"

"What do you mean?"

"We are falling upward—away from the common center of gravity. This world is hollow, just a thick, hollow shell. We have fallen into one of the surface entrances. The gravity center probably exists slightly more than halfway from the outer surface to the inner surface.

"YOU mean an inner world?" queried 5W-438. "Like the inner world of the hydrosphere's core?"

"Something like that, only this inner world will be of much vaster proportions. I can well understand now why this planet is so surprisingly large while its weight seemed relatively light at a distance."

"Then we shall stop falling soon and come to a standstill like a pendulum before we start falling back the way we came," said 34T-11.

"If you will notice, our momentum is commencing to diminish itself even now," the professor observed, pointing to the dizzying walls which were now flying past less swiftly. Our momentum is starting to die against the pull of gravity."

"We shall shoot out upon the inner surface," offered 6W-438.

"It is logical to assume that there is some way of checking our flight before we commence falling back, or else those things which attacked us would not have jumped into this hole. We have seen none of them yet."

"The pit is narrowing!" exclaimed 6W-438. "See the cave mouths on each side!"

The speed of the machine men had slowed now so that they were able to distinguish the dark, gaping mouths of caves on all sides. Dark, flitting figures, poking themselves curiously from the entrances, testified to the tenancy of the pit.

"Bottom at last!" cried 34T-11.

"Oh top," Professor Jameson added. "Whichever you will."

CHAPTER II

Death's Cavern

FAR above them in the direction to which their mad momentum was hurtling them there was a snarled network of cables. As they sped nearer, the professor doubted vaguely if they would slow up sufficiently for a safe landing. His doubts were justified, for they shot like plummets through the skein of cabled materials, snapping several of the ropes like threads. Their momentum broken, the machine men clattered none too gently against a rocky roof and tumbled back upon the cables which swayed dizzily with their weight.

Here they sat for a moment, gathering their wits and undecided as to what they would do next. Several large tunnel mouths surrounded them.

"Look!"

6W-438 called their attention to several small dark specks which grew larger below them as the speeding bodies of several of the planet's strange inhabitants came rushing upward even as the machine men had done. With the speed of thought, the professor urged his metal companions into a cave's mouth in the near by wall.

"We can learn much about this place if we catch them," was his quick decision.

From their concealment, the three machine men watched. There were four of the headless creatures. Three of them landed lightly against the net of cables which they seized hold of and clung to. The other was coming too slow to make the network, and the three Zoromes watched his frantic threshing and kicking in the air, strange motions of all four appendages, which took him even closer to the pit wall before his momentum ceased.

Just as he came to a standstill, like the momentary halt of a pendulum, he reached out and seized hold of a rough, jutting outcrop of rock. For a moment he hung there and rested from his exertions; then he gave a leap upward from this position and seized the network where he clung with his three companions. Shrill, piercing sounds were made by all four, sounding much like the raucous voices of wild parrots. The professor noticed that the sound issued from a gray, vibrating drumhead located midway of the body on one side, pierced with several small openings.

THE headless inhabitants of the hollow planet climbed through the nearest openings in the net and sped across to a tunnel mouth in the wall opposite the less pretentious cave which the professor had selected to hide in with the two other machine men. From their actions, the party of four evidently did not know that the three Zoromes had preceded them down the shaft by two or three miles.

"We came swifter than they did," said 6W-438.

"We weigh more and offer less resistance to the air than they do," the professor observed. "While falling in the vacuum, our speeds were the same, but contact with the air slowed them up more than it did us."

"Come," urged 6W-348. "They are out of sight now. Let us follow."

The machine men made their way carefully across the cables lest they break through a weakened strand or fall through the holes their upflung metal bodies had torn. Into the larger passage they made their way, following the four headless creatures.

Like the walls of the broad pit they

had left behind, the tunnel was illuminated by the rock itself, shining luminously, throwing off a suffused, ghostly light evenly distributed and casting no shadows. The machine men moved cautiously and slowly, not wishing to overtake the black inhabitants of the pit and excite them to alarm. The tunnel possessed no divergences in the matter of confusing choice, for which the machine men were thankful, though the passage, turned and twisted, always on a steep, upward slant which the machine men were now positive led to an inner world.

Once, they came near to stumbling on their quarry, who, not possessing the tireless qualities of the machine men, had stopped to rest. Their shrill conversation warned the three Zoromes just in time, and they halted behind a concealing bend of the tunnel, waiting for sounds indicating the onward movement of their recent antagonists.

The shrill piping of the headless denizens of the sunless world became less distinct, dying away, and once more the machine men continued their way, keeping a discreet distance in the rear. Ahead of them, the shrill notes of conversation took on a sudden touch of excitement. The voices were mixed with echoes, reaching the auditory senses of the machine men in an altered manner, much different from what they had heard from them before.

Professor Jameson hurried along the tunnel, attempting to make the most progress possible with the least amount of sound from his four metal feet. In back of him came 6W-438 and 34T-11. The tunnel ended abruptly upon a wide stone ledge, and the three Zoromes found themselves looking down upon a vast cavern into which opened several tunnel mouths. The excited voices came from below them.

AS the machine men peered cautiously over the upturned ledge, the first objects to attract their startled gaze were scattered piles of bones, some of them rising in hills halfway to the high ceiling, having been thrown there apparently to maintain cleared avenues through the immense cavern. All the way to the other end of the huge subterranean chamber were these grim hills of death.

Many of the bones were yellowed with antiquity, starting to crumble with age. Many were broken as if snapped by violent effort. All were of the same species evidently, suggesting an open graveyard, yet in this cavernous tomb the professor saw no corpses either fresh or in partial decomposition. There were only the mute, clean picked bones, hills upon hills of them rising upward in riotous profusion.

The machine men peered farther over the ledge. Below them were the headless denizens of the hollow planet whom they had followed, joined now with three more. All seven were snatching and fighting viciously over something which the machine men were unable to clearly distinguish in the ensuing confusion.

Two of them, rolling aud tumbling apart from the rest, snorting their shrill notes of anger at each other, fought for a large fragment of what appeared to be a carcass, or a part of a carcass, for where it had touched the floor it left a dark, viscous liquid. One of the headless creatures succeeded in wresting the morsel from the other and with a quickness which baffled his companion, he curved his dark, bony torso halfway around the coveted prize, wrapping his four limbs across the remaining semicircle. For a moment, the loser pulled and hauled at the vise-like embrace of his companion; then, seeing that his efforts brought no results, he joined the

remaining five who were scrambling and buffeting each other over the smaller pieces.

The machine men sensed a significance between the carcass, over which the headless creatures were struggling so determinedly, and the silent hills of skeletal remains which partly filled the cavern.

FINALLY, all seven appeared to have obtained shares of the prize, for like their first companion they curled up their dark, horny bodies and wrapped their four long appendages about the remains of what the metal men guessed had once been a living animal of some kind or other. Perhaps this was a hunting ground. If so, what incentive served to draw the quarry to this horrible place?

As the machine men watched, they saw the headless ones change their positions, from time to time, especially the tenacious holds of the long appendages. That they were eating, the professor fully believed, but in what manner he was unable to distinguish. An examination of this species had disclosed no visible mouths. Occasionally, one of them would withdraw an appendage and toss a white, glistening bone skillfully upon a near by pile of skeletons, where it lodged with a bouncing clatter or else started a running avalanche which seemed to maintain the conical symmetry of the ivory hills.

When the meal was finished, the remaining bones were tossed accurately upon the apex of a bleached heap, carrying the suggestion of long experience. The machine men, from their elevated position, caught sight of a lonely figure stepping out of one of the numerous tunnel mouths into the immense cavern. Several piles of bones lay between the new arrival and the headless creatures who had so recently gorged themselves, and neither saw the other . . .

Professor Jameson examined the newcomer both physically and mentally. Instantly, he perceived it to be of a higher plane of intelligence than the seven below. Besides, it possessed a head, appearing to the professor like a distorted caricature of his own race. The chief differences were longer legs and shorter arms. Two eyes were set quite far apart, nearly on the sides of the head, like those of a fish, and the representative of this new species had nostrils yet lacked a nose. A three cornered mouth and a visible lack of exterior ears completed the physiognomy. Hair was absent, at least from this particular individual. Standing five feet or more, the wanderer from the tunnel was a foot shorter than the black space dwellers, despite the latter's lack of a head. Unlike the hard, bony composition of the headless species, the newcomers deep-purple body appeared soft and fleshy.

Like the crust of the planet they inhabited, the headless creatures seemed to possess no up or down. They walked or ran on one set of appendages as nimbly as on the opposite set. This representative of a higher species, however, appeared to possess a pair of legs for walking, while the other set of apperdages were what Professor Jameson would have described as arms, the machine men of Zor knowing them as jointed tentacles.

The three Zoromes probed the more complicated mind of this solitary wanderer from the tunnel. They discovered a fearful attitude, yet a resigned, fatalistic premonition of inevitable, inescapable doom, a doom as inexorable as life and death itself. The wanderer walked slowly and with hesitant reluctance into the cavern of death, pausing in bewilderment at the sounds of shrill

conversation among the unseen space-dwellers.

AN unnameable terror caused the newcomer to draw back instinctively towards the tunnel, turning to contemplate the avenue from which it had just emerged, as if considering flight from this terrible place with its all too suggestive reminders of death, yet there was no retreat. In the mental processes of this higher species, the machine men sensed a battle between instinctive self preservation and the recently established indifference of despair. There seemed to exist the conviction of a hopeless, impending fate, a fate yet unknown though soon to be realized.

The listless steps of the wanderer rattled a bone recently dislodged from a near by heap. Seven black bodies grew rigid with attention. The headless denizens of the outer crust arose to their feet, whichever end of their bodies they found most convenient at the time, and raced each other around the towering monoliths of old skeletons.

At the sight of these grim figures, the creature from the tunnel paused in sudden terror. The headless ones also paused in their rush, shrilling to each other. In the simple minds of the headless surface dwellers, the machine men recognized but a single, dominating thought—a single thought—and that was assassination followed by a gluttonous feast. One of the black assassins rushed down upon the purple inhabitant of what the machine men believed to be the inner world.

The outcome of the struggle was never in doubt. The headless one was far superior in physical equipment. His six companions waited patiently for the end which soon came. There was little resistance, no more than a pusillanimous effort born of the instincts of self-preservation. It appeared as if this wanderer into the cavernous boneyard had previously known that any resistance was futile, as if he had known this fact all of a lifetime.

Soon, the seven headless ones were once more wrangling and feasting. Meanwhile, the professor and his metal comrades had found a stone stairway winding down the ledge. Noiselessly, and unnoticed, they descended into the cavern of death, the tomb of skeleton remains.

Halfway down, the professor stopped. An indistinct movement at the far end of the long cavern had caught his eye. He looked carefully and saw another of the planet's purple inhabitants, one who had just emerged from a tunnel's mouth. Three of the black assassins, who had found themselves unfortunate in obtaining only small bits of the recent kill, saw this new victim. They arose and chattered in shrill octaves.

Professor Jameson well realized what would happen, and a sudden resolve prompted him to save this blundering, unfortunate creature who had entered the cavern of death, death to his species alone, apparently. The professor cleared many of the stone steps at a time as he clattered down the rough stairs in pursuit of the three purposeful denizens of the surface world. Divining his object, 34T-11 and 6W-438 were close behind him.

In dumbfounded amazement, the four headless ones who had interrupted their feeding in order to satisfy their curiosity regarding the actions of their three companions, now stared at the metal apparitions striding rapidly between the stacks of bones straight for the three killers who were rapidly closing in upon their bewildered and unmoving prey.

THE professor feared their arrival would not be in time to save the

helpless creature, for, unlike their previous attack, the three headless ones were rushing forward without slackening their pace, each intent on getting a lion's share of the kill. For a moment, the professor deplored his inability to utter an audible sound, a sound which would cause the black assassins to turn and discover the machine men, thus diverting their attention from the hapless victim they were about to attack.

The creature from the planet's interior saw the three Zoromes, but he appeared no less surprised at them than at the dark, headless monsters creeping up on him so rapidly with their vicious, deadly intent. The professor's problem of distracting the attention of the horrid three was solved for him by one of their four companions who sent a raucous, vibrant thrill of warning echoing throughout the cavern. One of the headless surface dwellers had already seized its victim when the pause came following the warning.

The four who had first sighted the machine men now arose and came to join forces with the first three. Professor Jameson seized the first to arrive and sent him spinning through the air to land upon a bone heap, sending the bones dancing and clicking, as if they were once more magically endowed with life, life which had been dormant and long forgotten. Another of the black creatures launched himself upon the professor who sprang to the aid of the inner world inhabitant. 6W-438 seized the headless monster in his strong, metal grasp and crushed it to death in his tentacles amidst a shrilling and raucous bedlam which was abruptly stilled.

Bulging eyes ogled the professor from the body of the surface dweller who held the wanderer from the inner world. The headless one released his frightened quarry, who made no move to run, and grappled with the strange animal with the cubed body. The professor's strong tentacles gripped the dark, bony body, yet without terrific pressure he could do little more than scratch the surface. Exerting himself, the machine man felt the black body snap quickly. He threw the limp carcass to one side. 6W-438 and 34T-11 had rapidly accounted for the remaining assassins, all except one who now realized, rather vaguely, the folly of attacking these strange metal men. He scurried quickly across the cavern, muttering in excited whistles. The escaping surface dweller stumbled up the stairs and was out of sight below the upturned ledge where recently the three Zoromes had hidden as they watched the previous events taking place in the cavern.

PROFESSOR JAMESON turned to the purple inhabitant of the inner world. From the terrorized mind of the creature, they had already ascertained that he lived on the inner side of the planet.

"Who are you?" the professor concentrated the mental question into the disordered mind of the inner world inhabitant. "Why did you come here?"

For several minutes the machine men could exact no coherent thoughts from him. He uttered strange sounds, and his brain reflected a queer disorder of chaotic ideas, out of which they could make little sense.

"The fate . . . no return . . . disaster, death . . . why did he not die? Who were these gods of the caverns? They fought . . . the last trip . . . what of Aou . . . no escape . . . the law . . . was this the end? What was to happen to him?"

Not until the professor had patiently impressed on his mind several times, that he was not to be harmed, could he calm the mental processes, and discour-

age the unintelligible gibberish, of this inner world inhabitant. The machine men desired a reasonable explanation of the strange cavern and the stranger actions of the two varying species. Finally, a unified story was gathered.

"I am Ielee of Ayt, a city of Ome," was the substance of the garbled story told the machine men by the creature from the inner world, still uneasy and frightened.

"Why did you come here?" was the professor's query.

"We must all come here some day," replied Ielee. "It is the law. You must know that, since you dwell here."

"We do not live here," said the machine man, suddenly aware that this creature knew no more concerning these caverns than did the machine men, apparently not as much. "Why must you all come here?"

"There is no other way," was the dispirited answer. "It is the fate of the aged and of those who do wrong or become a public burden."

"You are not aged," the professor observed. "You must be a criminal."

"I WAS sent here because a suspicion existed in Ayt that I was an enemy to the rule of the city, an instigator."

"Why were you not killed in Ayt?" asked the machine man, endeavoring to pry into the secret of the great cavern about which Ielee seemed so annoyingly evasive. "Why must you come here to add your bones to them?"

The Aytan stared morbidly at the piles of bones to which the professor referred, contemplating them with a sudden understanding.

"You come here to be eaten!" the machine man impressed the startling thought upon Ielee's brain. "Those black things were about to kill you when we interfered!"

Ielee looked long at the inert, headless bodies lying in broken, twisted attitudes among the litters of bleaching bones. 34T-11 was down close among them, examining the black appendages, concentrating his attention upon the small, porous discs set close together.

"We come here to fulfill the legend," said Ielee, arriving at the heart of the matter which perplexed the machine men. "We must all, at the end of our allotted time, journey into the depths of these caverns to die, or else the great menace of antiquity shall once more be unloosed upon us. The menace must be kept satisfied."

"What is this menace?" the professor asked. "What do you fear?"

"Ages ago, our ancestors were constantly beset by ravaging hordes which came up out of the ground, spreading horror and death in all the cities of Ome. The passages were walled up, but it was impossible to find all of them, and the menace always reappeared in large numbers, often digging away the barriers our ancestors erected. Legions of our fighting forces were sent into the ground, and they never returned in full rank. A few stragglers came back half crazed with terrors they had encountered, and they claim that the only way to live in peace from the menace was to send living tribute."

"Sacrifice," interjected 6W-438.

"That is exactly it," said Ielee. "More of our combatants were sent into the tunnels, and they never returned either. Again the menace abated. Since that time, it has been the continuous habit for the aged to wander down these tunnels and never return. The menace has left us alone since that long period when it made its last appearance."

"And what if you should return?" asked the professor.

"I would be killed instantly," Ielee replied. "It is sacrilege to return."

"WHAT did you do that they sent you here?" queried 6W-438.

"I argued against the continuance of cutting short our old age, making us enter these caverns and never come back. I know more about this legend than do the majority of my people. It has come to be their religion, and they keep it clothed in self-conjured mystery. To me, it is merely a myth. No one in our lifetime has ever seen the menace return, and none of the older Aytans, those who will soon take the last journey to their fate, can recollect any of their ancestors being attacked by the menace. There are many who doubt the legend but few of us dare speak our minds openly. I am one of the few."

More so than Ielee, the machine men could well understand the foundation of this legend from their encounters with the headless creatures of the surface. The legend, stripped of any elaboration which the peoples of the inner world might give it, was a simple law of the universe, one species preying upon another for sustenance, but in this case it was a reversed arrangement from the usual. Generally, the machine men found a more advanced species depriving their life continuity from a less intelligent species.

Here, in the depths of this sunless world, a race of physically superior creatures was living a parasitical existence at the expense of a more intelligent, yet weaker, species, the latter's intelligence being the main stumbling block to superior dominance. The black, headless denizens of the outer crust possessed little brains and, like the primitive dinosaurs of the planet earth, which the machine men had recently looked upon from the time bubble, knew but little fear.

On the contrary, the inhabitants of the inner world possessed just enough mental acumen to afford them an impractical imagination. Like races of earthly barbarians the professor remembered, their imagination magnified dangers and cloaked them in mythical powers.

IELEE had abandoned his useless chattering when it had finally been driven home to him that the machine men read his thoughts rather than understanding his language. He now expressed a mental equivalent of what the professor's earthly computations would have recognized as a distance of a mile and a half. But they also recognized that Ielee was not exactly positive of this.

"I have made a discovery," 34T-11 reported. "I can understand now how these headless creatures eat without mouths. These concave porous discs on the inner side of each appendage absorb food a little at a time, first digesting it and assimilating it immediately afterward. The discs are tiny, exterior stomachs."

A brief examination by 6W-438 and the professor substantiated the machine man's amazing discovery. Once more they contemplated the trip to Ayt.

"For me to return means death," said Ielee, "but if what you tell me is correct, then to stay here also means death, a useless and ignominious death."

The Aytan repressed a shudder as he gazed across the cavern. What he saw, the machine men also saw with their endless row of eyes set close to the base of their conical heads. Several dark bodies were hovering about the ledge, moving back and forth indistinctly, as if waiting to see what the curious metal things would do next. They made no move to come down and cross the cavern and attack. Perhaps the motionless bodies of their companions imparted to them an unreasoning, instinctive fear.

"You will not die on your return to Ayt," Professor Jameson promised Ielee. "We shall see to that."

The Aytan resolutely accompanied the three Zoromes back through the tunnel which had brought him to the cavern of bones. In no place did the machine men encounter darkness during the tunnel's entire length. The rock was luminous, a cursory examination proving that this was a natural phenomenon rather than artificial illumination. The professor was surprised at the lack of ascent followed by the tunnel's route. There was little more than a scarcely discernible rise. From Ielee, they learned that the tunnel's mouth entered the side of a mountain of the inner world. This cavern of the fate, they came to believe, was located in the heart of the mountain. If this were so, then they were already above the average level of the inner world.

Inquiring as to the nature of the inner world, Professor Jameson learned that eternal daylight reigned there. The only darkness known was that of certain dungeons in various sections of Ayt, where the rock did not shine as it did elsewhere throughout most of Ome.

THEY finally reached the end of the long, winding tunnel and found themselves upon a small plateau near the foot of the mountain Ielee had told about. Into the distance stretched a vivid panorama the machine men had partly expected, but which astounded them nevertheless with its impressive sight. Before them was a broad vista of upcurved landscape, the furtheh details of which were eventually lost in a deep blue haze.

Below them lay the city of Ayt, glistening in polychrome relief, a city built of many-colored stones. The dwellings, as seen from the plateau, appeared simply made, their harsh, uneven lines enhanced by the distance, turned magically into silhouettes of beauty, enchantment lent by remoteness. The buildings of Ayt were low, scattered and rambling, that section of the city closest the mountain betraying a lack of architectural finesse, crude, rough blocks of beautiful, vari-colored stone piled upon one another in chaotic design, cemented together roughly to create a solidified whole of the unfinished, teetering squares and slabs.

The roofs were conspicuous by their contrast. It might have been said of Ayt that the city possessed no roofs at all. Overgrown canopies of climbing vines merged together above the rough walls to create a dense foliage interspersed with blossoms. These vines were characteristic of several varieties both in growth and color.

It suddenly occurred to the professor that these cities never experienced the benefits or discomforts of rainfall, and he wondered at this, but it was no time for questioning now. Several figures ran to meet them from a nearby stone hut, one of several structures straggling between the city and the mountain.

The Aytans ventured within fifty feet of Ielee and the three Zoromes, and then they halted, uttering strange cries of excitement, arguing, gesticulating; then hurling several words at Ielee who answered them. The machine men recognized that they were calling the wrath of their supersitions down upon Ielee for having committed the rare sacrilege of a return from the fate. Ielee was uttering replies to the extent that he had escaped a useless death; that he had been rescued by friends constructed of metal; that his philosophy was his own life, to live and fight for, to maintain. The Aytans ran for the village at full speed.

"Come—let us enter the city," suggested 6W-438. "We can explain the

situation and perhaps make them understand us."

"It means death!" cried Ielee, exhibiting a strong force of passion. "They think you are the ancient menace returned once more to bring death and destruction upon their luckless heads, all because of my sacrilege!"

"Do not fear them," said the professor. "They shall not be allowed to harm you."

FEARLESSLY, the three machine men started down the graded slope for the city of Ayt in the world of perpetual light. Professor Jameson sensed that it was quite cold here, judging from his standards of earth life, but the creatures of the inner world, almost as cold-blooded as the headless species of the outer crust, appeared to be accustomed and acclimated through hereditary environment and evolution to these conditions.

The machine men were generally unaware of any difference in temperature other than extreme, burning heat and the intense chill of the ether void, both extremes often affecting their metal encased brains. Their temperature equalizers remedied this, but they were only worn in such special cases as the exploration on this sunless world had occasioned.

They were no more than half the distance from the plateau to the city proper, when excited cries reached them. From the outermost fringe of buildings constituting the city proper there burst forth a running throng of the species Ielee represented. The machine men sensed in their attitude the infectious demeanor of outraged fanaticism, of fear and mob violence.

"They are howling for my blood!" cried Ielee, who, nevertheless, still maintained his onward pace with the machine men.

"You are a prophet, Ielee," said Professor Jameson, "and a prophet it seems, by some universal rule of psychology, generally lacks the esteem of his own people."

The crowd surged forward, yet the forward wall hesitated in sudden fear, when they found themselves rapidly meeting what they believed to be representatives of the ancient menace. None of them had ever looked upon, or heard a description of, their legendary foes, for those who returned as Ielee had done were put to death before they ever had a chance to voice their impressions of the death cavern and its hideous occupants, if they really went that far before turning back.

CHAPTER III

Hostility

PROFESSOR JAMESON and his metal companions recognized the hostile attitude and the unreasoning fear of this superstitious race, and they realized that fear had lent them desperation, the fighting spirit of the cornered animal with its back to the wall. They fully believed that the ancient menace was once more sending its initial vanguard upon their city from out of the ground. It must be met and overcome. Further raids must be forestalled.

Those in the fore of the crowd hesitated, but were pushed by the bolder ones in the rear, the latter's boldness born of the very fact that there were others before them. The professor urged his metal companions to refrain from injuring these people of Ayt, to handle them as gently as possible and strive for a diplomatic and elucidating solution to the problem confronting them.

"We are friends," radiated the professor.

A large chunk of green rock was hurled at the machine men, clattering from the metal legs of 34T-11. This was the only answer, or, rather, a salutatory expression of the crowd's intentions, for the professor's unuttered thought had fallen on excited, determined, fear-ridden minds and was mostly lost. An intense concentration of mental effort would be necessary in jolting the inferior cerebral channels of the Aytans to the mental harmony desired by the three Zoromes.

More objects were hurled at the machine men. More than a score of the Aytans advanced with long poles formed into a lance on one end, a large, stony knob fastened at the other end. They swung these slowly about their heads as they approached warily. More rocks and large pieces of hard, vegetal growths were thrown, some of them testifying to the accuracy of their hurlers by bouncing harmlessly off the metal bodies of the machine men, who kept Ielee well behind them, that he might not be harmed by this barrage of missles.

Those with the lances threw them at the machine men protecting Ielee. Several of the weapons struck glancing blows, one of them shattering itself upon 6W-438 without so much as scratching him. Professor Jameson caught another one, both amazing and terrifying the awed Aytans by grinding its shaft between two of his entwined tentacles. Several of the Aytans' fighting units now sprang to retrieve their weapons, waving the hard, stone ends above their heads to smash them down upon Ielee and the Zoromes.

THE Aytans rushed in dangerously close, casting their hammer-headed lances full at the machine men, a few possessing the temerity to leap forward upon their hitherto unresisting opponents, confident that crushing blows would settle and quiet them for once and all.

6W-438's tentacle curled about the throat of one of these over-venturesome Aytans while another grasped the upflung arm with its murderous bludgeon, abruptly stopping the downward swing, much to the agonizing discomfort of the Aytan who found himself roughly thrown upon the ground several feet distant from the center of combat. The professor received the full brunt of two lusty swings on his metal head before he could pinion his adversary and toss him aside, dazed yet unhurt. In preventing a sudden termination to the career of Ielee, 34T-11 saved him, none too soon, by pushing himself in front of a well-aimed club. There followed a dull, clashing sound and one of the machine man's eyes grew blank and useless. This required a new optical plate.

Having been vanquished with little effort, discouraged by the invulnerable qualities of the Zoromes, the Aytans fell back. During this lull in hostilities, Professor Jameson realized it to be an opportune time for diplomacy. He waved his metal tentacles to focus the attentions of the Aytans, who became quieter, listening for an audible voice which they did not hear, yet they were aware of strange thought impressions upon their minds.

The three unkillable monsters who had emerged from the ground with Ielee were not representatives of the ancient menace as the Aytans so wrongly believed, certain thought processes seemed to argue with the convictions of the inner world inhabitants. The machine men were from another world, very far distant, and they had come with overtures of friendship.

The latter thought regarding another world was lost completely. To the Aytans there was only one other world besides Ome, and that was the world of the dead, peopled as it was with the

dominating influence of the ancient menace. If any thought existed of other worlds in the most radical mind among the Aytans, it was a conception of another existence far beyond, carved from an unending universe of solid rock.

Professor Jameson tried vainly to transport to their minds the memory he possessed of the headless surface dwellers overcoming one of their kind, the Aytan who had journeyed to meet the fate. Then he gave them another thought picture, the combat between the black assassins and the machine men in protecting Ielee from their destroying clutches, the fate of all who entered the cavern of skeletons. The professor found it difficult to implant these thoughts on the minds of the Aytans largely because the latter still persisted in preconceived ideas regarding the machine men, and partly because of their suspicious nature, so averse to accepting totally new ideas.

Those who did receive the thought clearly, failed to fully comprehend its significance. It was too much at one time for little minds to digest thoroughly. The professor had said enough to allay active opposition, yet he sensed a general attitude of flagrant distrust and suspicion. It would not settle this suspicion, the machine men well realized, to show hesitation, so they started for the city once more, keeping Ielee safely guarded in a casual manner. But no more objects were thrown. The crowd still chattered but readily opened a lane for the four, closing once more behind, allowing them a respectful distance.

PROFESSOR JAMESON sensed that all was not right, that a hidden idea existed somewhere, yet he felt confident that whatever the Aytans managed to devise, the three Zoromes could easily better. The Aytans were slow thinking and elementary. In vain he searched the minds of the hurrying throngs, he could discover no hidden motive. It was confusing, this trying to penetrate the thoughts of so many at one time, so he gave it up.

Down a broad avenue of Ayt they passed, followed and preceded by the Aytans. Startled cries broke forth suddenly on all sides, causing temporary bewilderment which yielded to rapid action. Like fog in the sun, the crowd drifted from sight on all sides to be replaced by several Aytans with queer paraphernalia, appearing from the concealment offered by the stone buildings.

"Another attack!" 6W-438 exclaimed. "I thought they had some more tricks waiting us!"

"Don't let them snare you!" Ielee chattered, forgetting in his excitement that the three Zoromes did not comprehend his speech.

But the thought which had fashioned the articulate syllables of the Aytan was sufficient. Already the hostile creatures surrounding the machine men were swinging their weapons, of a different kind from the first, long, forked poles on the end of which was a loop of heavy rope or cable. Plently of slack hung from the pole. Instinctively, the professor divined their use. They were a primitive form of lasso, whirled and thrown from a standard rather than from an appendage of the Aytans.

Several of them swished through the air and settled about the machine men with amazing accuracy. Ielee and the professor were snared together, one loop falling over them both. The machine man confidently stressed his tentacles preparatory to breaking it. The superficial snap he gave the cable failed to part it. He exerted more effort and felt it yield a bit. Heartened by this, he put his mightiest strength to the task. Slowly the cable stretched apart, yet it did not break, and when the professor's

tentacles released the cable it snapped quickly into place once more, unweakened by his efforts.

6W-438 had already made this discovery, and he charged angrily at the Aytan who had roped him, bent on chastising the daring creature, but another whistling noose from the opposite direction halted his progress. And now, as the noosed cables came hurtling from all directions, entangling the three Zoromes and Ielee, the crowd, which had accompanied them into the city, thronged into the avenue once more, laying hold of the heavy ropes which the professor distinguished as a closely-woven light metal.

PROFESSOR JAMESON realized at once that they were in the power of the Aytans unless they wished to exercise extreme violence, There existed no opportunity of laying tentacles on those who held the cables as 6W-438 had discovered, for the combined strength and weight of a score or more of Aytans on each of the other ropes would tense and hold any one of the machine men from progressing voluntarily in any given direction.

The professor thought of the heat ray he carried in the fore part of one of his tentacles. With this formidable weapon, he could easily weave a circle of death about himself among the Aytans, yet he refrained from its use. Not unless it were necessary, to save them from an uncompromising fate or threatening situation, would he use it on these stubborn Aytans.

The heat ray was a special piece of equipment the machine man had installed on his metal body shortly after the advent into the blue dimension on the planet of the double sun, when he had lost his ray gun in the hand to hand fighting side by side with the tripeds against their enemies, the Emkls. None of the other Zoromes had gone to this trouble. The built-in heat ray had already stood the professor in good stead in the depths of the hydrosphere. With it, he and a fellow machine man had escaped from the stomach of a monstrous fish.

The professor noticed that they were being drawn forcibly towards some destination the Aytans had definitely in mind. The professor gathered that it was a prison of some sort of other, yet he received only a hazy impression from the minds of his captors, for they were thinking of it none too strongly, their present thoughts centering on the main idea of preventing their captives from getting loose. It took Ielee to fully acquaint them with their destination. The machine men visioned a broad, deep well in the center of a public square, a deep pit with glassy walls, vertical and smooth.

The professor decided that it was time drastic measures were taken to loose themselves from the cables. Few of his tentacles were pinioned, yet the one terminating in the heat ray was among these. By curling the tentacle slightly, the professor turned the heat ray upon the nearest cable. A slight glow, an acrid smoke, and the cable parted, letting a dozen or more Aytans tumble in a heap from the broken strand.

A cry of alarm issued from the Aytons. The pulling and hauling was continued at a swifter pace. The Aytans burst into a run and pulled the machine men and Ielee after them, those behind the four captives still holding their strands, ready for any furious, forward rush on the part of the machine men.

Vainly, Professor Jameson tried to play the heat ray upon another of the cables, but the close, sentient body of Ielee, bound to him by the tight loop of one of the cables was in the way. The Professor played the destructive ray

upon the cable most convenient to reach, one attached to 34T-11. The strand parted quickly, and once more a warning cry arose from the Aytans. Other cries arose, too, ahead of them, and in these the professor detected notes of triumph, not unmingled with admonitions urging haste.

The machine men only partly understood the situation when they found the crowd before them drifting away to either side. A deep, yawning cavity reared its depth before them, and into this Ielee and his three metal allies were forced by stress on the cables. In vain, the machinemen fought to retain their stand by the pit's edge, but skillful maneuvering of the cables sent them sliding over the sharp brink, dangling some fifty feet or more over the unscalable den. They were lowered carefully to the bottom, despite the desperate attempts of 34T-11 to scale the cables faster than the Aytans could lower them. The result was a twenty foot drop to the bottom when the cables were released.

"WE are in trouble, now," said 6W-438. "They have us where they want us. We are too trusting—not in them but in ourselves. We have no one else to blame."

"What will they do next?" the professor asked, turning to Ielee, who, beyond a morbid attitude of resignation, appeared unperturbed.

"We shall starve and die," he said. "Not until then will they take us out. I have seen it happen before."

"But I thought no one was condemned to any other death except the fate," said 34T-11.

"This pit is reserved for our enemies from other cities who come to pillage and rob," Ielee explained. "Victims of war are brought here to end their lives."

"They will have a mighty long wait," remarked 6W-438, "if they expect us to starve to death."

"But I am not a machine man," was Ielee's sad rejoinder.

Professor Jameson stared at the smooth walls of their prison rising loftily upward to the rim lined with triumphant Aytans who were pointing and commenting exuberantly, boasting of their accomplishment. The walls of the pit were of the same luminous nature as the walls of the tunnel they had walked through in coming to Ayt, but here several harmonizing shades emanated from the rock.

Ielee, however, saw none of this beauty, or if he saw it, the polychrome chaos failed to impress him favorably. His thoughts were crowded with that which was soon to be. He ruminated over the pit's deadly significance, while the machine men contemplated the possibilities of escape and found them wanting. It was all so crude and simple, yet apparently unescapable. Above them, the sky, a dull, purplish blue, formed a square, retreating roof for this den in which they now found themselves.

The Aytan, who had so daringly and sacrilegously returned from the caves of the dead, complained of weariness and lay down in a corner for rest, closing his eyes and slumping into a limp heap. The machine men stripped the entangling cables from their metal limbs, casting them into the center of the pit where the Aytans from above would be least likely to retrieve them. The professor had suggested the possibility of using them in some manner of escape, though he had yet to see any practical means of use. There was nothing around the edge of the pit to hold them.

A long time passed, a period which the three Zoromes were unable to accurately estimate. Daylight persisted perpetually. There were no heavenly bodies, no rotation or revolution to mark

the time. Ielee awoke several times and then returned to sleep, seemingly his natural escape from the misery creeping upon him. He grew haggard of countenance. From time to time, the inhabitants of Ayt came to the pit's edge in small groups to stare down upon their captives. No efforts were made to molest them.

The Aytans were content to let them starve to death. This would have furnished the professor a point of humor had it not been for Ielee. The deadly intent of their captors was slowly working its full import upon the rapidly weakening Aytan.

THE continued vigor of the machine men was an endless topic of discussion and wonder among the groups of Aytans who wandered to the pit from time to time to survey the fate of their captives. It was remarkable, they told each other, how these ancient enemies of theirs subsisted so actively without food. The machine men divined their attitude; besides, Ielee overheard several conversations held at the pit's rim.

Ielee grew steadily weaker and less active, and the machine men feared that soon he would pass away. He became so weak that he could not rise, and finally his consciousness drifted off, so that he scarcely knew where he was, coming to his senses occasionally to babble incoherent thoughts born of a disarranged brain.

There were various intervals of time when few came to look down upon the machine men and their dying companion. Sometimes the pit's edge was entirely vacant, especially after the novelty of the new captives had worn off a bit. During one of these moments, Professor Jameson saw a solitary Aytan walk to the edge, look warily about him and then hurl something quickly into the pit before he departed silently as he had come.

Professor Jameston had no time to read what was in the Aytan's mind, for the latter hurried away too soon. 6W-438, by whom the object had landed, picked it up for investigation. It was a round object of soft, vegetal growth, crushed on one side where it had landed. For a moment, the machine men were nonplussed by the questionable significance of this action, their first impression suggesting a malicious act by one of the Aytans.

"Food!" the professor suddenly explained. "Ielee has a friend out there!"

"Quick! We must arouse him!" 34T-11 urged. "If it is not too late!"

6W-438 shook Ielee gently, while the professor held several morsels of the crushed food before the starved Aytan's mouth. The odor of food seemed to possess magical properties of restoration, for Ielee came to his senses and seized the food, cramming it indiscriminately into his mouth. He made short work of it, the machine men shielding him from any curious gaze from above. They knew that it would not be well for this food source to be revealed. The professor told Ielee afterward where the food had come from and how furtively it had been delivered.

"From one of those who think much as I do, but who are more discreet about voicing their opinions," said Ielee.

Ielee's guess was correct. When the Aytan from above delivered his next supply of food, he and Ielee silently exchanged greetings. With the outside aid of Aou, Ielee quickly recovered his strength and vigor, much to the alarm and surprise of the city's inhabitants, who were now accrediting the machine men with the power of demons who had made Ielee one of themselves. Strange stories concerning Ielee ran rampant through Ayt.

PROFESSOR JAMESON could not avoid comparison of the Aytans with ignorant, African natives which he had known during his earthly existence. The black creatures of the outer crust he classified mentally with the gorillas of the jungle. Their mental plane was much the same. It seemed strange to the professor that outstanding thinkers like Aou and Ielee should arise from time to time from a people as superstitiously ignorant as the Aytans. These comparisons drawn across the yawning abyss of forty million years helped to fill the monotonous hours in the pit.

The machine men grew tired of reading their captors' minds. There was little in them. The Aytans had no further intentions regarding their prisoners other than patient waiting. The superstition regarding them as ancient enemies from the caverns of the fate remained fixed. Any pleas, the three Zoromes or Ielee attempted to the contrary, were regarded as falsities, luring enticements, to turn them loose for mischief.

The Aytans commenced to despair of their ever dying by starvation, marveling no less at the ability of the machine men to subsist without food than they did at the similar feat of Ielee. Aou continued bringing food to Ielee in secret, coming at times when no one else stood near the pit, and the four captives were careful that no one saw Ielee eating.

Professor Jameson wondered if there would be no end to this timeless waiting. He conjectured how near this dark, sunless world was to the plantary system of the burnt-out sun. The probabilities were that the entire system would be disrupted from its old routine and byways, to add a new member to its family, a member by adoption rather than birthright.

The Zoromes discussed the chances of a collision with one of the original planets or the huge, cooling sun itself, but the idea was discounted as a remote possibility, not to be unexpected.

"In all probabilities this world, in which we now find ourselves, will move into this new system past the sun and become attracted by its superior mass and attraction, curving its path into an orbit around the central body," said 6W-438. "The other planets will be materially affected. Some will have their orbits shortened; others, their orbits lengthened. Satellites of these planets will also alter their courses slightly. All planetary systems will be found to be carefully balanced sets of cosmic travelers, a veritable family each in itself, any change in their planetary fields having its visible effect on each and every member of the system affected, regardless of their relative size."

To Ielee, the attempts to acquaint him with the immensities of cosmic vastness, beyond the shell of his own world, were futile. He failed to conceive the idea even though offering an open mind. He only realized that the three machine men, who had befriended him in the cavern of the dead, were from somewhere beyond the world of the surface dwellers. Illustrative diagrams which the machine men drew on the walls of the pit in an effort to elucidate the wonders of the cosmos were of no avail to Ielee. He could not realize what space was. To him, the conception, nearest to the actual truth, visioned a perpetual continuation of solid rock, punctured here and there with the many strange and confusing worlds the machine men were telling him about. When he tried to understand how these worlds moved free of one another about a main, central body, his mental coordination broke into chaos. The idea was too difficult to conceive.

GREAT excitement reigned one day, or perhaps it would be more exact to say after a period of time, for it had been day ever since the arrival of the machine men in the inner world. Sounds of riotous confusion came gradually towards the pit. The running figures of the Aytans came close. Then came others, pulling the long cables which the Zoromes had known too well. As the victims were drawn into sight at the pit's edge, the machine men recognized them as inhabitants of the inner world of Ome, though a slight difference in body structure from the Aytans was immediately discernible. These new captives were taller and obviously stronger built. They struggled manfully to escape, but it was of no avail. The cables which had successfully withstood the violent strainings of the machine men were unaffected.

"Prisoners!" exclaimed Ielee. "They are from another city!"

There were five of them, the Aytans lowering the tall, inner world captives into the unscalable pit to join Ielee and the machine men. Completely disregarding Ielee, they stared in open-mouthed astonishment at the three metal monsters, undecided as to what they might expect. The professor made overtures of friendship.

"We, too, are captives of the Aytans," he mentally impressed upon them.

"And not the black devils from beyond?" one of the new prisoners asked, chattering in surprise at the message which had been given him so silently by this mechanical creature that approached him on four legs.

"What do you know of the surface dwellers?" interrogated the professor in rising interest. "How did you know they were black?"

"We have seen them!" came the reply.

"And fought them, too!" added another.

"From what city do you come?" asked Ielee.

"NO city, now," was the answer. "We are outlaws, originally from Uxene. We entered the caverns of the fate together. We found endless stacks of bones. Black things fought us, but they were fewer than we and we fought our way to escape. We ran back through the tunnel to Uxene, but here we had to leave hurriedly to escape the wrath of our fellow citizens, for no one must return from the fate. It is said that the ancient horrors will be revived."

"Where is this Uxene?" Professor Jameson inquired.

"Many long trips from here. We have passed numerous cities since leaving Uxene, too many to recollect. Several were friendly to us, and we stopped at them. Others were hostile, and we found it necessary to flee for our lives. We were trapped just outside this city and brought here."

"What gave you the idea that we were the black creatures from the world of the dead?" asked 6W-438.

"All the way into the city and through Ayt until we were lowered among you, we were promised short shrift because you were demons from the world of the dead who would make quick work of us. Naturally, we expected to find the headless things like those we fought in the caverns of the fate."

The machine men told their story from the time they had entered the cavern of bones up to the time the Aytans had cast them into this prison hold. The five new captives proved sympathetic listeners to Ielee's beliefs concerning this constant sacrifice to the ancient menace. They heartily endorsed his policy of combative resistance.

Professor Jameson now found a new

problem, the food supply. Only one had it previously been necessary to feed. Here were five more consumers of organic substance. Whether or not Aou would be equal to the emergency was largely problematical. It was open to conjecture whether another opportunity for Aou to bring food would present itself, for the pit had once more become a popular gathering spot, since the five outlawed Uxenians had been caught.

Though disappointed in their anticipations of seeing the Uxenians torn to pieces before their conjectured fury of the machine men, the Aytans were none the less fascinated by the fact that the new prisoners became friends with the metal creatures.

Ielee was becoming hungry again, while the five from Uxene were complaining of increasing appetites. Still the Aytans crowded the edges of the pit, new faces constantly taking the places of those who had temporarily tired of the situation and had left for duties or divertisements elsewhere. The Uxenians did not suffer so soon the pangs of hunger which assailed Ielee. They were of a hardier stock, and Professor Jameson appreciated their sturdy make-up, which were more of a match for the black assassins from the surface than was the Aytan physique.

It was plain to see that commerce and war among the cities of Ome had united them in a common belief through legend concerning the sacrifice they must all make on reaching a certain age development. The professor inquired concerning water on this strange inner surface and learned that there were countless lakes, some of them bottomless, scattered over the entire inner world.

Instead of a vast expanse of water divided by continents, Ome represented an endless land surface dotted with lakes. There were no streams or rivers due to the fact that there was no rainfall. The climate was always the same; it never varied. Wind was unknown.

SINCE the coming of the five outlaws from Uxene, there passed what Professor Jameson would have been ready to calculate as two earthly days, and still the Aytans changed places constantly about the edges of the pit, like sentinels of eternal vigilance. Several times the nine captives perceived Aou, but the latter dared not bring food in the presence of so many witnesses. It would mean a place for him in the pit, or else the fate itself.

Furor seized the spectators as an alarm spread through the city avenues and focussed all attention in the direction of the mountain. Upon the faces of the Aytans ranged about the pit's edge, the prisoners descried surprise. This attitude changed to alarm as agonized cries rent the air. Something had stricken the Aytons with sudden horror. Like sheep they stampeded from the vicinity of the pit.

"What is it?" cried Zlei, the leader of the outlawed Uxenians.

"Your metal comrades have come!" ventured Ielee to the professor. "As you said they might!"

"No," said the professor. "It is not they. What your fellow citizens saw up there I have seen mirrored in their minds, Ielee. It is the ancient menace from the world of the dead, the black assassins from whom 6W-438, 34T-11 and I rescued you. They are coming in countless numbers. Now will the Aytans believe more than ever the legend. Your return brought the ancient menace, they will all say."

As if to substantiate what the three Zoromes had seen in the minds of the terrified Aytans, a black, headless form, running on two appendages and waving two others similar in structure, ran to

the edge of the pit, its bulging eyes ogling from its body at the nine prisoners. A soft shrilling, like the distant, muffled notes of a steam whistle, echoed into the pit and instantly more of the black monsters appeared.

"It is they!" shouted Zlei.

From above came the cries of conflict, a conglomeration of excited chattering and shrill plaints from both far and near, merging into a bedlam of weird cacophony. Uncounted ranks of the black assassins, who ruled over the caverns of the dead, hurried restlessly and searchingly past the pit and its prisoners.

Up above, an enormous slaughter was in progress. The irresistible hordes of the invincible enemy poured into Ayt. The Aytans did not encounter the mild defensive of a few machine men this time, and they were allowed no opportunity of arranging elaborate traps for their foes.

Professor Jameson raised a fore tentacle and waved it slowly in the direction of the pit's rim where several inquisitive creatures of the outer crust were bending low, trying to discover a means of getting into the pit. The ray hit them squarely, and they fell shrieking and dying into the sunken prison. The professor now turned his terrible weapon on all black creatures which came in sight. Several were badly burned and managed to escape, but most of them, unaware that the peril rose from below them, were falling victims to the machine man's weapon.

CHAPTER IV

The Ancient Menace

MORE came to take the places of those fallen, and soon a heap of dead bodies lay strewn about the edge of the pit, Professor Jameson training his heat ray upon every outer dweller which came that way.

"Now is our chance to get out!" he announced, as the surface dwellers grew less numerous and the sounds of combat became more distant. "Toss up those cables and try to snag them securely in that mass of dead bodies!"

6W-438 and 34T-11 hastily put the professor's plan into effect. Several casts were made while the professor stood in the center of the pit ready to pick off any approaching surface dwellers. Finally, one of the long ropes of woven metal lodged and hung tight. Ielee was the lightest member of the escape party, but he was unequal to the long climb, and so Nayese, a comrade of Zlei, volunteered.

Seizing the cable, he jerked it cautiously several times and then nimbly commenced the ascent. Halfway up, the cable commenced slipping. Nayese hurried his ascent, but the extra strain only increased the rapid sliding of the cable. Down came Nayese, Zlei and another leaping forward to break his fall, the rope, accompanied by the black, twisting corpse of a surface dweller, swiftly following him.

"We can only try again," said 34T-11, swinging a cable ready to throw.

He stopped his swinging abruptly as a lone figure walked among the dead surface dwellers to the edge of the pit. Professor Jameson restrained the initial impulse, which sight of the solitary figure had enlivened in his fore tentacle with its deadly ray. An Aytan stood there beside the scattered forms of the surface dwellers, some of whom sagged part way over the lip of the abyss. It was Aou.

"Grasp one of these cables we throw up, Aou, and hold it fast!" Ielee promptly told him.

34T-11 threw, and Aou seized the flying end before it could slither back into

the pit. The Aytan braced himself and up came Nayese hand over hand, who then stood side by side with Aou, holding the cable for Zlei and the remaining Uxenians. The three Zoromes were next to climb out of their prison, and then Ielee fastened the cable's end about his waist and was hauled up by 6W-438.

A group of surface dwellers came skulking from a near by avenue, and perceiving their hereditary prey burst into a run. The machine men strode to meet them, the professor's deadly ray flitting upon the nearest, who fell writhing in death convulsions, the ray making swift work of his bony exterior.

UNAFRAID, their quest for food to satiate their unceasing appetites acting as a relentless driving motive, the surface dwellers raced down upon the recently escaped prisoners. The machine men came to grips with the first one to arrive, 6W-438 seizing two in his tentacles, but even so, there were more than the machine men could handle at one time.

From an eye in his metal head, the professor saw Zlei tense himself before the furious onrush of a surface dweller and seize the latter in two outstretched arms, hurling the startled creature into the pit they had just quitted. Two more of the surface dwellers leaped upon Zlei, but more of the Uxenians were there to aid him. Professor Jameson broke the back of his second opponent and came to the aid of Aou and Nayese who were grappling with one of the black assassins, each one locked securely in a pair of the creature's strong appendages. The professor burnt him through the middle with his heat ray, turning his attention to 6W-438 who had already done for one of his two assailants, he and the professor pulling apart the remaining one.

The battle was soon over. With the exceptions of several red, irritated spots on the bodies of Nayese and Aou where the strong locked appendages of a surface dweller had already commenced their digestive processes, the victors were unharmed. Professor Jameson turned to Ielee.

"Now is the time to convince the Aytans that we are friends, instead of the ancient menace. Where are they? We shall go to their aid."

"They have probably fled to the rocky fortress up on the mountain side," Aou explained. "It is here that the ancients found the greatest security, we are told, when they were attrcked."

Led by Ielee and Aou, the machine men and Uxenians started through the deserted streets of Ayt for the mountain side. On the way, they passed innumerable surface dwellers curled up on the pavements, their bodies and appendages wrapped up in the occupation of feeding, completely oblivious to all possible dangers, their centuries of brutish dominance stripping their senses of all fear of the weaker species in Ome. Professor Jameson exercised the potency of his heat ray upon several of the feeding assassins, while Zlei and Nayese wielded clubs they had picked up not far from the public prison.

They came across scattered piles of freshly, clean-picked bones which the black raiders had abandoned to go in search of new prey. Emerging at last from the confines of the brilliant, polychrome city, the escape party saw where the scene of battle had finally shifted. The surface dwellers were besieging the Aytans who had taken to the fortress mentioned by Aou.

HAVING previously approached Ayt with their backs to the mountain, too engrossed with the city to notice that

which was behind them and farther up the mountain side, the machine men had failed to see this embrasured pinnacle leaning against the sheer wall of a towering cliff. It was a considerable distance above and beyond the tunnel mouth leading to the caves of the dead. On three sides of this flat square of rock, the walls fell smooth for more than a hundred feet. Rough, rocky columns, broad at the base, lined the rim of this elevated plateau on three sides, the remaining side backing up against a smooth wall of towering rock.

On the approach, a deep, incised slope was sharply cut, allowing entrance and egress for the rocky heights. It was this entrance which the Aytans were desperately defending against a surging mob of surface dwellers.

From the embrasures punctuating the tall columns, many Aytans peered fearfully down upon the milling masses of black, headless bodies swarming in gluttonous anticipation at the foot of the declivity. A black river of the creatures jammed the slope, trying to push its dark flotsam of assassination upon the plateau crowded with Aytans. A wall of the defenders literally smashed to pieces the vanguard of surface dwellers shoved forward by the irresistible pressure from behind. Exhausted, flailing arms attempted to hold back the ancient menace.

With periodic regularity, a tiring Aytan would relax his vigilance and be seized by black, snatching appendages, hurled backward into the dark, restless throng, his place immediately being taken by another defender. A small group of the surface dwellers would suddenly become a squabbling center of activity and then the ceaseless surge towards the retreat of the Aytans would again push inexorably forward. The surface dwellers were losing many lives, yet they were slowly winning the fight to gain the colonnaded precipice and run rampant among the Aytans.

ASIDE from those trampled underfoot by the crushing masses of dark surface dwellers, the front ranks now represented an inanimate mass, a dead, fighting unit pushed forward from behind and held in place by the walls of the sloping entrance. The Aytans could no longer reach their enemies. A barrier of dead bodies, unconquerable, rallied even in death. The defending Aytans, relieving each other from time to time, found themselves backed to the very top of the cliff.

Putting on all speed, the machine men hurried ahead of their allies of Ome, running up the steep incline, scrambling past the tunnel mouth and continuing to the crowding, milling fringe of surface dwellers. The Aytans were on the verge of wholesale defeat, unable to hold out much longer. Without the ability to maintain the terrific pace of the four legged machine men, Aou, Ieelee and the Uxenians fell behind. The latter, those who had not found clubs, brandished large thigh bones of the dead Aytans they had passed at the foot of the mountains.

In dismay, they saw more of the surface dwellers emerge from the tunnel. The latter cast affrighted glances behind them, then, hearing the conflict above them, they hurried to join their companions storming the cliff, lured irresistibly by the promise of food in riotous quantity. The professor wove a fan of death before him with the heat ray, but he immediately recognized that this rear attack would never save the Aytans above. It was too late for such counter tactics. There was only one spot where the machine men might check this ravaging horde, and the professor made for this one spot with the rapidity of thought.

The surface dwellers several feet in from the outer edge of the crowd were suddenly buried beneath a hurtling body of metal which trampled and pushed them downward, continuing onward over the close-packed assemblage and up to the opening in the fortress. At the top, the professor noticed quickly that there existed an old contrivance for closing the gateway. Apparent disuse and lack of repair had rendered it useless.

The Aytans were appalled at the sight of one of their recent captives, rushing relentlessly over the headless creatures, whose vicious attack had so bewildered and demoralized them. Evidently one of their leaders, this metal monstrosity from the world of the dead was coming to revenge his imprisonment in the very hour of triumph and victory. Behind him, upheld by the hideous, black pack, were the remaining two things of metal, staggering forward.

This was too much for the Aytans. With defeat and doom closing in all about them, then to have these purposeful beings launch their powerful offensive, was battling with the inevitable will of destiny. The Aytans gave way hopelessly, like the final gesture of a dying animal, letting their clubs fall listlessly upon the rushing tide of antagonists who had pushed past their dead companions.

WITH Professor Jameson, the first dozen or more of the surface dwellers were forcing themselves upon the broad, flat cliff, eagerly searching for victims among the close packed ranks of the Aytans.

"Keep fighting!" the machine man exclaimed mentally to the Aytans. "We are helping you!"

To emphasize this message, the professor turned and waved his killing heat ray into the rushing mass of surface dwellers, who had suddenly found all restrictions to their advance given up by the Aytans. The machine man bent low to let 34T-11 and 6W-438 hurdle him and place themselves at his side.

"Get those who are already up here and throw them over!"

The two machine men, leaving the professor to repel the black invaders, hurried into the defending throngs of Aytans who were being overwhelmed by their stronger antagonists. Seizing the surface dwellers in their strong tentacles, the machine men cast them through the embrasures of the fortress, and they fell twisting and hurtling upon the bright colored rocks a hundred feet below, their shrill screams brought to an abrupt silence.

In spite of the heat ray's advantage, the professor found himself hard put to check the onrush of the surface dwellers, whose surging mass had gained momentum with the faltering of the Aytans. Recovered from their initial surprise, the Aytans now returned and fought side by side with this metal creature they had recently kept a prisoner. Dispatching those who had gained the stronghold, 6W-438 and 34T-11 now came to fight alongside the professor and the Aytans. Curling their tentacles around the nearest surface dwellers within reach, they hurled them back upon their headless companions. Flailing a dead surface dweller viciously, 34T-11 smashed down several of the enemy, breaking their appendages and creating considerable havoc, before seizing another victim in his metal embrace.

Meanwhile Aou, Ielee and the five stalwart Uxenians were carrying on a guerrilla warfare of their own. The surface dwellers were all concentrating their attention upon the looming stronghold of the Aytans, crowding as close

as their dense numbers would permit. Taking advantage of this, the seven avengers struck down many an unsuspecting foe, slowly thinning the outer ranks.

But more of the black monsters from the outer world were pouring from the tunnel leading to the caves of abandoned hope. Like a flood they suddenly came running forth, seemingly in a state of alarm. It was a signal for the machine men to dig in and fight all the harder against this increasing mass of stubborn weight. From beneath, Professor Jameson felt many strong appendages grip his metal legs, threatening to pull him down. He felt himself going, but a downward flick of his heat ray released him from the difficulty. This was the signal for another forward rush of the innumerable foe. The tentacles of 6W-438 and 34T-11 saved the professor from disaster.

The surface dwellers now possessed a broader front of attack, having gained the precipice itself, when the Aytans had despondently fallen back. They were becoming exceedingly hard to hold back in spite of the terrific loss in numbers they were suffering. The professor's heat ray was becoming weaker in effect and needed recharging. Soon, it would be useless. He cast a desperate glance at the horde of new reinforcements rushing out of the tunnel far below. How rapidly they were running, as if they were being pursued.

A black, clutching form scrambled over the professor's pointed head just as a triumphant cry flashed from the brain of 6W-438.

"Look, 21MM392!" he exclaimed. "The tunnel—look!"

The professor hurled the surface dweller from him far out over the sea of waving black arms. His eyes took in the situation. Out of the tunnel, close behind the running surface dwellers, came five machine men. They were equipped with mechanical wings used both for atmosphere flying and for repellor navigation in the wastes of the cosmos.

The five machine men stared about them outside the tunnel, wonderment and confusion reflected from their minds, but this condition was only momentary. The three Zoromes far above them radiated their thoughts with astonishing rapidity. Here was not the dull, slow conversation with the inhabitants of Ome, but the exchange of highly developed, experienced minds possessed of superior intellect.

IN a flash, 41C-98, 92ZQ153, 76H-385, 176Z56 and 56F-450 were acquainted with the entire situation and distinguishment of friend and foe. Like five metal birds, they spread their mechanical wings and flew swiftly upward over the scene of battle. The Aytans were aghast at these new arrivals, but on coming closer the flying Zoromes were recognized as the same species as the three machine men, and the Aytans' alarm was immediately replaced by enthusiastic acclaim.

Those of the surface dwellers, who had run from the tunnel ahead of the machine men, did not come to join the attack but stood in mute bewildered indecision a short distance from the tunnel entrance, watching the amazing flight of the five winged monsters who had so relentlessly pursued them from the cavern of bones. At the sight of the winged machine men, those of the surface dwellers on the outer edge of the thronging multitude turned and ran terrorized down the mountain side, their flight suggestive of a previous encounter with these flying metal men. Creatures, who had previously known little of fear, fled from the flying Zoromes.

The five new arrivals from the space

ship of Zor carried weapons not unlike that which the professor had built into his fore tentacle, and they played them liberally among the black besiegers of the Aytan fortress, circling low over the enemy who now found their superior numbers defenceless. From an irresistible current of driving energy directed at the Aytan stronghold, the surface dwellers suddenly became a demoralized mob, that looked only for escape from the whirring flap of the light metal wings above them.

To the black inhabitants of the outer surface, that sound spelled terror and doom. It took several minutes for the rioting throng to free itself of the entrance slope to the fortress, but after that they tumbled down the slope at a rapid pace, first on one set of appendages and then on the other, often appearing very much like four-spoked wheels, so quickly did they change ends in their flight.

"We have taught them what it means to be afraid," called 41C-98.

THE professor then learned how the five Zoromes had found their three lost companions. 41C-98 circled above him while with 6W-438 and 34T-11, he preceded a party of Aytans in pursuit of the surface dwellers. The remaining four Zoromes were circling and flitting about the fleeing enemy, flying low to wreak havoc and keep them moving.

"When you did not return to the space ship with the rest, we sent out a call to you which was not answered," 41C-98 explained. "It took our searching parties only a short time to find the remains of your combat with the planet's headless inhabitants. We followed the tunnel and discovered where you had fallen into the bottomless hole, where the ledge broke with your weight. We returned to the space ship and reported our discovery. Five of us came equipped with weapons, the mechanical wings and a distance communicator. 56F-450 has the communicator."

"And the surface dwellers, who later stormed Ayt, were driven there because they fled from your approach?" queried the professor, seeking to have his suspicions confirmed.

"Yes, they must be the ones among whom we spread death and terror when they, unfortunately for themselves, persisted in attacking us, while we searched the caves for you. We could find no trace of you three. In the cavern of bones, we picked up your trail again. The surface dwellers ran from us, as if we were a dreaded plague."

"You caused the recurrence of an old legend and prophecy," said the professor, "but it is just as well, for now the people of Ome will learn to cast aside their old superstitions and overthrow this idea of sacrifice and tribute they have maintained for many ages."

The surface dwellers, finding the machine men attacking them continually from all sides in this unfamiliar environment of the inner world, now turned to but one visible escape, the tunnel entrance from which they had lately emerged. Pushing each other aside, they strove to gain this sanctuary, scrambling out of sight in a long, black stream like so many frightened insects seeking to escape the bright rays of unaccustomed daylight.

THE Aytans, inspired with an enthusiasm and bravery unprecedented in even the most remote annals of their history, drove the enemy along like domesticated beasts. More ferocious in the attack were five stalwart figures which loomed fully a head taller than the Aytans. Beside them, the professor recognized Aou and Ielee.

When the last of the surface dwellers had retreated into the tunnel, the eight

Zoromes and their allies of Ome turned their attention upon the city. More of the black, headless assassins were found in their characteristic feeding pose, all wrapped up, their four appendages busily digesting the remains of what shortly before had been living Aytans. These few stragglers were instantly killed.

Frightened Aytans were brought forth from hiding places throughout the city, when they learned that the ancient menace had actually fled, pursued by Aytans. For the machine men, it was a physical victory; for the Aytans, it was a moral victory. Of the two, the latter triumph was the more significant.

"The power of the legend is broken!" exclaimed Ielee. "No more will the Aytans go resignedly to death! We now know our enemy and their weaknesses! We shall fight them in the manner best suited to overcome them!"

"And travel among the other cities to enlighten all," added Aou. "We shall even enter the tunnels and hunt them out, combining our strength."

In the meanwhile, Professor Jameson was anxious to learn of the present relation of this wandering world to the planetary system it was entering.

"I have received no communications since we left the cavern of bones," said 56F-450. "The last I heard, our position was somewhat past the orbit of the fourth planet."

"That far, already?" the professor remarked in surprise. "This hollow world has passed by the six outer planets! There were no visible effects here inside!"

"Because this planet passed the other worlds far off," 56F-450 explained. "But this third planet, which is the smallest one yet encountered in the system, will come perilously close. In fact, this wandering planet on which we are now, has accelerated its speed through solar attraction since entering the system, and many of our previous calculations we made in regard to its approaching proximity to various planets have required revision several times."

"Is it heading sunward?" asked the professor in sudden concern.

"No," 56F-450 replied. "But the last report urged us to make haste in finding you and coming back to the space-ship on the surface, 744U-21 was rather alarmed by the direction and accelerated speed this planet was taking towards the third planet."

"If I recollect right, it was not a large world," said the professor.

"About as large as the satellite of your own planet earth," 56F-450 observed. "I have been trying to gain communication with the space-ship since we drove the surface dwellers back into their tunnel, but there has been no response. They are probably out on a short expedition to one of the near by worlds."

56F-450 turned over the communicator to the professor as he joined the party in search of stray surface dwellers, who still hid and lurked in the city of Ayt. The communicator consisted of a cubed apparatus which fitted halfway over the pointed head of a Zorome. Its function was to amplify thought waves and also act as a sensitive detector for the reception of thought waves beyond the ordinary reach of the machine men. There was a limit to the distance of reception, however, and the professor knew that the space-ship of Zor had gone on some hurried trip beyond this limit.

PROFESSOR JAMESON, expecting a call from the space-ship at any time, waited patiently. In the meantime, the city was scoured from one end to the other. The Aytans returned with two of the surface dwellers securely

bound with the looped cables. Instead of killing them while they lay in a gluttonous torpor, the Aytans and Uxenians, at the instigation and inspiration of Ielee, had taken them alive. They were to be kept in the pit where Ielee and the machine men had lingered so long.

"We will take them on a tour of Ome," Ielee explained. "They will be emphatic proof of our claims. We—"

But the professor heard no more. A silent voice, a telepathic call received over the thought communicator, diverted his entire attention from Ielee.

"56F-450! 56F-450!"

"This is 21MM392 listening," the professor radiated.

"29G-75 on the space ship! We have just returned from the third planet which is in direct line with the course taken by this world! A smashing collision will soon take place unless——"

There followed an anxious pause, as if 29G-75 had turned to confer with someone else on the space ship.

"Unless what?" cried the professor with the fever of excitement.

"We have been to the third planet and set up a frequency of continuous atomic disintegration! We must destroy a world! It is your only chance of survival, for this hollow planet will be crushed into thousands of pieces like a shell, if these planets ever meet!"

"Is there no time to come back?" asked 6W-438, reading the import of the situation from the professor's troubled mind.

Professor Jameson relayed the thought of 6W-438.

"This planet's speed is increasing!" came the startling announcement. "The third world of the system is commencing to swing off its orbit to meet this wanderer from space!"

"What of the disintegration process?" asked the professor, realizing that an attempt to reach the surface and the space-ship would now be a foolhardy venture. "Is it working?"

"Nothing doing yet," responded 29G-75. "The action will commence at the planet's center and work outward, but it will have to work quickly, for this hollow world is picking up rapid acceleration."

In his mind's eye, the professor, as well as his metal comrades, visioned what would happen. There would be a terrific concussion which would shatter and burst the hollow world from end to end, destroying its life in one entire swoop, reducing the wandering world to fragments which would probably become small satellites of the third planet.

"Where are you now?" queried the professor. "On the planet's surface?"

"Yes. We shall stay and keep sending you reports as long as we dare. 744U-21 has the fear that our efforts at disintegration of the planet have been made too late."

The professor glimpsed a rapid end to the careers of the eight machine men caught in the bowels of this doomed world. Mountains of hurtling, flying, bursting rock would crush them like tiny insects. The hollow sphere would be reduced to insignificant chunks, some of them sent gyrating off into the cosmos on endless, meteoric pilgrimages, other fragments bombarding the fractured surface of the third planet or else becoming satellites.

IT was a fearful end to consider. 34T-11 broached the fighting chance of a rapid trip back through the cavern of bones and the bottomless abyss, but this was an even more foolhardy venture than the futile chances of remaining.

"We can only keep to the open away from the mountain and trust to luck," the professor advised. "You who have

wings may take your chances far above the inner surface if you prefer, but I can see no advantages in that other than temporary escape."

The machine men waited for further reports. Nothing was said to the uncomprehending Aytans, other than a request of the professor's that they meet outside the city for a conference. What this conference was to cover, the professor did not explain, but the Aytans were ready to follow any instructions the eight Zoromes gave them, grateful as they were for the splendid services they had been rendered.

The real import behind the professor's request was to get the Aytans out into the open, free of the tumbling walls, rock houses and towers of the city. The professor was particular that they should all meet on the side of the city opposite the mountain. He did not launch into an explanation of what was to happen, for he realized the futility of this. The Aytans would not understand; they would possess only a faint, disturbing idea of the impending catastrophe.

"Any signs yet of the disintegration process?" the professor inquired anxiously.

"There are no external evidences to be seen, 29G-75 replied. "We went to the third planet and gave it careful analysis to determine its composition which we found differs radically from the elements of which this hollow planet consists. This difference is not so surprising when you stop to consider that this wandering world is probably from another corner of the universe, probably flung into space by an undeterminable convulsion."

"Was the third planet found practicable for disintegration?"

"744U-21 figured that unless the planet's core possessed certain nullifying elements, which so short a time gave to us no lengthy opportunities of ascertaining, the disintegration forces we planted with the automatic depth moles would set up a multiple progression of atomic disintegration," 29G75 explained.

"How far apart are the two planets?" the professor inquired uneasily.

"Only a few thousand miles," came the discouraging report. "This distance is rapidly closing."

In tense uneasiness, the machine men inside the doomed world waited for further reports. It appeared that the forces of disintegration had met the nullifying screen of adverse elements 29G-75 had mentioned. The professor was thinking that, even should the disintegration get under way, it would be too late to avoid a collision with the solid bulk of the third planet. What would their chances of survival be in this chaos of crumbled, whirling, planetary ruins? Each Zorome thought of this problem. To escape the shattered globe would be asking for a miracle, and miracles are the long exception to the universal law of averages.

"Is this world in conjunction with the third planet and the sun?" the professor asked, a sudden idea having asserted itself.

"No," answered 29G-75. "This world is now approaching from a direction which would ordinarily touch the third planet's orbit."

CHAPTER V

Cosmic Cataclysm

FATE had ordained that this third planet should be at this particular spot on its orbit at this time. What chances had previously existed of the cosmic wanderer missing the third planet were now discouraged by the mutual attraction of the two bodies which had caused the third planet to swell its orbital circumference and

hasten the approach of the wandering world. The meeting of the two was inevitable. The slow revolution of the third planet was gradually lessening, dragged backward by the approaching bulk of the hollow sphere.

Excited cries of the Aytans aroused the professor from his abstractions. They were jumping upward in unprecedented leaps, coming down like feathers.

"The gravity on this side of the world is becoming less powerful," said 6W-438. "It is the influence of the third planet. The gravity on the antipodes of this inner world must be increasing, while on the outer crust the case is just the opposite."

"I fear that we are about to see an entire world and its inhabitants snuffed out in one mighty blow," said 41C-98.

"The last thing we shall ever see," 76H-385 added. "A magnificent, cosmic spectacle reserved for our exodus from life."

"21MM392!"

Professor Jameson pulled himself to immediate attention as 29G-75 called his faculties to immediate matters outside the inner world.

"A bright red crack has appeared on the surface of the third planet!" the excited thoughts of 29G-75 crowded in upon the professor's brain. "It is lengthening—broadening! The disintegration forces are taking hold and multiplying! Another fissure has appeared! It is joining the first tangently! The planet is belching forth its insides—dazzling—white hot—streaming out over the surface from the torn rents, fusing it!"

Like magnets, the mental faculties of all seven machine men beside Professor Jameson were drawn to his mind, in which were vividly reflected the events 29G-75 was relaying to him over the thought amplifier.

"The world looms nearer! It is becoming a raging inferno, turned practically inside out, little of the dark surface left. It illuminates this hollow globe with a tremendous light it has never seen before! Surface dwellers are running excitedly from one retreat to another! Their strides are ridiculous! Gravity is at its minimum! 744U-21 tells us that we cannot stay much longer! It is becoming too dangerous! The third planet is towering above us—like an avalanche of doom! Both worlds are rushing for each other! Pieces of the third planet are bursting and flying off into space in all directions! Several great chunks just struck this world with exploding concussions! The third planet is now a flaming, bursting ball of disintegratng forces!"

"Will it be dispersed in time?" interjected Professor Jameson into 29G-75's lurid account of the cataclysm.

"PREPARE for a crash, 21MM392!" came the fatal reply. "The space-ship is commencing to bound crazily about the surface. It is being drawn straight off the planet towards the other world! We can stay no longer! 20R-654 is fighting to get the ship under control and speed away to safety! Space is full of the meteoric pieces flying off the third planet! A mountainous fragment just passed perilously close! 20R-654 is putting on tremendous power! We are leaving death and destruction far behind! Hold tight, 21MM392, the planets are nearly together! The third planet is bursting apart! An internal explosion of terrific proportions has rent it asunder! There are now sev——"

The fading thoughts of 29G-75 died away as the space-ship from Zor left the dangerous territory of the colliding worlds. The machine men waited for the fatalistic moment which was soon to come. Was it doomsday for them? The

professor had been the center of many alarming situations during his career with the Zoromes, but never before had he been so irrevocably face to face with such an uncompromising predicament as this. He saw that the winged Zoromes were making no move to rise above atmospheric heights. Perhaps they realized the futility of this, being reluctant to leave their three comrades.

Sensing the uneasiness of the machine men, and both fascinated and bewildered by the increasing lack of gravitation, the Aytans were chattering excitedly. Was this why the machine men had urged them to come here—to witness this unworldly phenomenon of weightlessness? Why were the thoughts of these metal creatures suddenly removed beyond their perceptions, and why did they remain so silent, so grim, so tense.

A terrific shudder suddenly rumbled beneath their feet, throwing both Aytans and machine men to the ground. The eight Zoromes sprawled their four metal legs in an effort to remain upright. Thundering noises boomed hollowly as if crossing an immense gulf. A shattering rumble issued ceaselessly from the city of Ayt, as the ground quake reduced the many buildings of polychrome rock to mere mounds of stone, billowing dust clouds hovering over the ruined city like the smoke palls of an immense conflagration.

The atmosphere became hazy with the rising clouds of dust. Currents of air whistled past, terrifying the agitated Aytans with its unaccustomed, windy moan. A rending crash hurled the machine men into the air. Across the city, great avalanches of stone and dust roared down the mountain side upon the nearer buildings of Ayt. More cataclysmic reverberations and terrific shocks were heard and felt. The face of the entire mountain suddenly rose to its full height in tottering, vertical suspension, remained poised and crumbling for a brief second, then fell with a deafening, splitting roar, burying half of Ayt and sending rock débris hurtling across the city among the Aytans and machine men.

Echoes rolled endlessly past, while rocks and particles kept falling incessantly as the ground shivered and staggered, a blurring roar rising across an immense, incalculable distance from time to time, punctuated by persistent, reverberating blasts. The professor realized that this falling débris was not exclusively from the wrecked mountain. The planet was shaking itself to pieces. When it would collapse completely was probably a matter of minutes. Bursting fragments from the third planet had caused this quaking ruin. What would happen when they struck the nucleus? The professor could surmise only too vividly.

Many Aytans lay quiet on the ground, which a cursory glance revealed to the professor, as a swift gale of atmosphere lifted the hanging dust cloud for a moment. Several were dead, killed by the hurtling bombardment of rocks, others injured and insensible. Still others, dizzy from the continual 'quakes, attempted to stagger to their feet, wandering and falling aimlessly about, their frightened chatter drowned in the roaring, booming bedlam of the planet's groaning protests.

THE professor, tumbling among his fellow machine men from a still greater shock than had previously occurred, rose to find a strange, liquid mixture pelting them. It was mud, but where had it originated? The dust in the air, of course, but there was no rainfall in the inner world. Searching for answer to this unheard of phenomenon, the professor instantly recalled the numerous lakes which Zlei, the Uxenian, had told him about.

Water from these lakes had been hurled into the air, perhaps entire bodies of water, falling from one side to the other of the inner world. The professor expected any moment to be picked up with his metal comrades by an invisible power and hurled violently to another section of Ome. Such terrific stress had not reached this part of the inner world as yet. The rain still pelted down in undulating, uneven waves, virtually torrents which subsided intermittently to mere sprinklings. The dust had been settled into convoluting rivers of muddy ooze.

Professor Jameson had no more than expressed a grateful feeling of satisfaction that the terrific wrenchings of the planet and its inner atmosphere had not dashed the eight Zoromes from their position beside Ayt, when the ground suddenly heaved in under him and a rain of fine, hard particles, not liquid, descended upon him in such heavy, relentless quantities that he found it necessary to continually keep his feet moving to prevent burial by the débris. Another convulsion of the ground hurled him into a soft, muddy mass as more of the descending particles engulfed him. He struggled to his feet, but the tremendous weight upon him bore him down. He was being buried.

A dizzying effect of rapid whirling overcame him. Dull, booming noises reached him. A close packed stillness suddenly reigned, and he was only conscious of intermittent shudderings. The ground about him, of which he seemed to be a concrete part, gyrated and spiraled. Helplessly, Professor Jameson wondered what had happened. He vaguely doubted the stability of his defaulted senses, as if he thought they had been playing him tricks through some jolted imperfection of his mechanical construction.

The uneasy feeling that he was the center of a large section of the shattered planet and was hurtling off into space continued to persist. If this was the case, and the professor, held tight and motionless, had no way of verifying or discrediting this suspicion, would those aboard the space-ship realize his distress and come to his rescue? The chances were slim. Out of several million fragments of the shattered globe, how would they know in which one he was located unless their ship passed close?

With this thought in mind, the professor sent out desperate calls, calls which were unanswered. He tried to move his tentacles. They were bound close to him by the unyielding tons of surrounding débris. If he were a part of a mammoth meteor, there would exist no up or down for him. In vain, he tried to extricate his metal legs to test this possibility, but countless tons weighed them down from all directions. They were as secure as if gripped in the jaws of a powerful vise.

TO what future, if any future, was he fated? Professor Jameson recollected that forty million years had passed since his dead body had been rocketed from the earth into space up to the time the Zoromes came to transplant his brain into a machine. Forty million years! It might even be longer than that before he found himself liberated from this dilemma.

The significance appalled him. No escape from consciousness would be his, no escape like death was accorded him during his forty million years pilgrimage about the earth. He would, as an imprisoned part of the meteor, remain conscious, helpless and undying. The cosmic traveler might some time in the far flung future plunge its rough, jagged mass into the incandescent heart of a

remote sun or bury its rushing bulk in the bowels of a planet.

Again he sent out his desperate call. No answer. No one had heard him. He remembered the thought amplifier. It was gone, lost somewheres during the upheaval of two worlds. If he had it now, his chances would be improved considerably. A wave of hopelessness, a qualm of desolateness and futility swept into his mind.

Was there a definite wisdom in personal initiative beyond a passive degree, or did destiny arrange all? Again the professor radiated for help, designating his position as buried somewhere in a part of the wandering world. He wondered what had become of his seven companions who had been trapped with him in the inner world. Those with the mechanical wings might have been benefited after all by his advice to remain aloft during the catastrophe, but then he recollected the terrific downpours of rain, the rushing air currents and the shower of débris and larger chunks of rock which had struck him down, when he had fought burial by the overwhelming masses which had deluged him.

Several of his mechanical eyes were open, and the dirt pressed itself even into these, so compact was the mass surrounding him. One tentacle seemed dislocated, wrenched from its fastening. The sensations of being whirled about had ceased. The material in which he was imbedded now stayed as motionless as himself.

Once more he sent forth a mental radiation. It was the most he could do. Like the sudden flashing of a light from out of a dismal, unending darkness came a reply.

"Where are you, 21MM392?"

"Buried—immovable—countless tons weigh me down!"

"I am likewise," replied 176Z-56, "but I can move myself a bit. I believe I am not far from the surface."

"What surface?" queried the professor. "Where are we?"

"I do not know for certain. Something happened to destroy my consciousness. I came awake to find myself buried and heard you calling. At first, until I heard you state your situation, I believed that you were free and part of a searching party."

"Are we a part of a meteor, entombed in a section of the wandering world?" asked the professor, searching out the opinion of 176Z-56.

"If that is so, it must be an immense piece, a small asteroid, an entire cross-section chunk measuring from inner world to outer surface, for I can detect gravity. My limbs are slightly capable of movement, and when I lift them away from where I am imbedded they always fall back."

"Try and dig yourself to the surface," the professor urged.

"I shall."

176Z-56 commenced his work of getting free. Intermittently he radiated encouraging reports to the professor. He was digging upward away from gravity with his feet, pushing with his tentacles, gradually wriggling his way upward. An impassable barrier blocked his way. He dug around it, finding it to be a large rock. A cavity in this huge stone gave him a place to shove the dirt and stones, leaving him a small, confining cave in which to work.

THE roof of his little cave he kept digging away, the residue falling to the floor which grew higher. In this manner, 176Z-56 moved more quickly to escape. Finally, the digging became so easy and the dirt so loosely packed that the machine man abandoned the cave, leaping to his full height. His conical

head broke into the open, and he knew that he had gained the surface.

"Where are we?" asked the professor in rising excitement, his mind intent upon that of 176Z-56.

In fevered anticipation, he expected to see what 176Z-56 half expected, a cold, bright canopy of scintillating stars. 176Z-56 shook the dirt from his head, carefully brushing out the optical plates in order that he might see. What 176Z-56 saw, the professor perceived mirrored in his brain.

"The inner world!" the machine man exclaimed. "It stood the shock! The planet is intact!"

176Z-56 stared incredulously at the changed features of the inner world. The mountain had shifted much of its bulk and now overlay most of what formerly had been the city of Ayt, now a buried mass of ruins. The machine man found himself standing on a large hill of rock and dirt which had fallen from the sky, from somewhere beyond the upcurved horizon of the inner world. How the hollow globe had escaped destruction neither he nor the professor could guess.

The rest of the Zoromes were nowhere in sight. Little of Ayt was left, and this only clumps of ruin. Forlorn figures moved searchingly about the the disheveled polychrome square and slabs, which the falling mountain had not buried. They were the surviving Aytans. 176Z-56 called to them, meanwhile divesting himself of the wreckage of his mechanical wings now battered and bent into uselessness. They came to him, a straggling group, less than a tenth of the original population.

Among them were Ielee and two of the Uxenians. Zlei and Aou were not among the gathered faces. The Aytans seemed too confused, too dumb from tragedy and near-death to comment on what had happened. They listened abjectly to 176Z-56 who told them that 21MM392 was buried far beneath them. He inquired concerning the six other machine men.

"The last we saw of them they were being carried off into the air with several of our own people," said one of the Aytans. "We were partly buried and so escaped being carried off."

"Carried off," mused 176Z-56. "The wind took them, evidently during that last shock when the gravity grew less Gravity is back to normal now."

"There must be more of the Aytans who were buried and suffocated, if those above were saved by partial coverment," opined the buried professor. "If the danger is now all past, we can expect the space-ship to return to this planet. They will send a search party for us."

"Unless all the entrances have been closed," was 176Z-56's gloomy remark. "But they will get here some way, that is certain."

"If we only possessed the thought amplifier."

ONE of the keen eyed Aytans, more accustomed to the strange illumination of Ome than were the machine men, discerned a black dot far up in the sky. It came lower and nearer but was still indistinguishable as to details. Then 176Z-56 recognized it for what it really was, as familiar lines took definite form and shape.

"The space-ship!" he cried enthusiastically. "How did it ever get down in here?"

"Attract attention!" called the professor.

176Z-56 waved his tentacles about his head and bade the Aytans do the same. The space-ship had evidently seen him with the telescopes, however, about as soon as he had seen the space-ship, for the direct course of the ship was never in doubt. It settled down over the ruins

of Ayt and landed not far from the Aytans and the machine man.

Out of the ship came the Zoromes, among them 41C-98, 56F-450 and 34T-11. They had already been picked up by the space ship in various battered conditions. 176Z-56 and the professor learned that these three had fastened tentacles when the hurricane had blown them away. They had finally landed in one of the lakes whose surface waters had been blown into cascading raindrops, leaving but half the ordinary depth. The machine men had walked out of the lake, and it was not far from here that those in the space ship had found them.

Professor Jameson, 21MM392, was immediately dug from the living grave to which he had been so closely confined during the latter part of the tremendous air-currents.

"How did you come into Ome with the space ship?" the professor asked. "What happened to the third planet, and why is it this hollow sphere escaped being crushed?"

"We still have three of the machine men to find," said 744U-21. "Come aboard and while we are looking for them I will tell you what happened after 29G-75 lost touch with you."

"He last told me how close both worlds were to each other and of your winning fight to free the space ship from the field of new born meteors," said the professor. "It seems that the third planet was commencing to break up."

"That is just what saved this hollow world," 744Z-21 explained. "The disintegration process gained momentum and blew the planet to pieces just before the two worlds met."

"What did this world strike?" queried the professor, "the pieces of the third planet?"

"It struck several large fragments which threatened to break up this world. From the havoc wrought here in Ome, I can see that little more stress would have finished the destruction."

"How did you get in here with the space ship?"

"Where the ruins of the third planet struck, a huge cavity opens into the inner world. It is several of your miles broad, 21MM392, and we entered through this way."

Professor Jameson further learned that the third planet was entirely destroyed by the ravaging continuation of the atomic disintegration to which the wandering world had been immune due to its radical difference in elemental structure. The cosmic wanderer had finally fulfilled its destiny. It now followed the old route of the third planet.

The search for 6W-438, 922Q-153 and 76H-385 required patience and diligence. The first of the three to be found was 92ZQ-153, who, upon the planet of the double sun, had been known as Ravlt, one of the tripeds. Like Professor Jameson, he was found buried and helpless. 76H-385 was eventually found wandering through a city in the innerworld, a ruined city like all the rest, its inhabitants commencing the reconstruction.

THE machine men despaired of ever finding 6W-438. No trace of him could be found, and the machine men commenced to believe that during the collision with the partly disintegrated world, he had suffered an accident to his all important brain. No trace of him could be found, however, and the Zoromes came to the opinion that his remains were buried somewhere beneath the rock débris which had been torn loose all through the upcurved surface of the inner world, especially the material shattered from the wide hole through which the space ship had come.

It was suggested that they leave a small space flier situated prominently

somewhere in Ome, one of the few space fliers carried aboard the space ship, so that on the long chance of 6W-438's survival he could follow them to Zor. If he were buried alive, they would have heard from him during the search.

The professor was reluctant to leave without some trace of the machine man's fate. He could well recollect his own experiences of having been buried alive, fearing that he had seen his metal comrades for the last time, that he was doomed to ages of immovable solitude. It was his suggestion that more of the thought detectors be constructed, all space fliers aboard the ship be utilized for search, and single Zoromes be sent out with mechanical wings to comb the entire surface of the inner world.

41C-98, one the machine men who had fallen into the lake, also remembering his long sojourn at the bottom of the ocean on the planet of the double sun, suggested that 6W-438 might be at the bottom of a lake whose sides were unscalable. The professor's suggestion was adopted. The machine men started out on a thorough search with the thought detectors.

While this was in progress, 6W-438 was abruptly found in an unexpected manner. 47X-09 equipped with a pair of the mechanical wings and a thought detector, found the long lost machine man near the cavernous opening through which shone dimly the far off stars.

INSTEAD of the wrecked, battered remains they had expected to find, 6W-438 was alive and without mechanical injury. It was a strange story he told. When the hurricane had blown him away, he had landed several times only to be dragged and hurtled along by stronger gusts of atmosphere. His efforts to cling to the ground were futile, and he was eventually dropped into one of the surface pits. He had experienced the endless drop, and then, on his return to the inner world, he had found the way closed over with tons of fallen rock which had clogged and jammed the entrance.

He had eventually found a way to the outer surface, where, protected by his temperature equalizer, he had roamed over the outside of the dark world, waiting for the return of the space-ship. His long, tireless journey had taken him to the gigantic entrance which the colliding fragments of the third planet had smashed open in the crust of the hollow world.

Recognizing it as a means of entrance into the inner world, and knowing that he had left seven of his comrades there, he had taken the tremendous drop, catching hold of the jagged side of the wall at the terminus of his upward fall, climbing the rest of the way carefully and with patience. A slip meant a return to the surface.

He reported that most of the entrances previously used by the surface dwellers were closed. On the surface, he had been attacked repeatedly by ravenous surface dwellers. He had found many of the them dead of starvation, unable to find their way back into the caverns adjacent to Ome. Incalculable numbers had perished in the world cataclysm, caught in their deep retreats within the planet's thick crust when all the inner cavities had fallen to ruin.

More than three-quarters of the inner world's population had been wiped out, but those remaining were never to fear the surface dwellers again. Ielee, with the aid of the Zoromes during their long search for 6W-348, had spread the new idea throughout the various cities of Ome, the idea of combined measures of resistance. The hideous, parasitic surface dwellers were already a doomed race, no matter how many of them

should survive to find their way once more to the inner world.

THE machine men found themselves once more ready to resume their route back to Zor which lay many light years beyond the area of darkened worlds and their ebbing suns. 6W-438 was found, and no longer was it necessary for the Zoromes to remain. Bidding Ielee and his friends farewell, they headed the space-ship towards the broad opening in the planet's crust, the opening through which 6W-438 had come to join them, thus ending their search for him.

Emerging from the hollow world, they left the illuminated opening far behind. As the space ship opened speed, the planet below them dwindled away into insignificance beside the distant, dull-red ball of its cooling sun. No longer was it a sunless world. Aided by the machine men of Zor, it had ceased its eternal wandering to fulfill its eventual destiny.

THE END

What do you know?

1. At what elevation would the air be too rarefied for humanity? (See page 8.)
2. What does the word "barometer" mean and what is its origin? (See page 9.)
3. What factor is used to determine the height of a balloon or mountain? (See page 9.)
4. Are there any chemical compounds in the air? (See page 11.)
5. What planet may in the light of present knowledge be termed the outpost of the solar system? (See page 12.)
6. What was the planetary-explosion theory of the origin of the planetoids? (See page 16.)
7. What can be said about the "planet" Vulcan? (See page 16.)
8. Can glass be considered indestructible by time-long action? (See page 26.)
9. What would be the anticipated effect of high mountains upon a cooling and still incandescent orb? (See page 29.)
10. Do planets of the solar system vary in specific gravity? (See page 30.)
11. Where are the lightest ones situated in general? (See page 30.)
12. How could the specific gravity of a body be indicated on a planet of low gravitational attraction? (See page 31.)
13. Are the years on Jupiter and the years on Saturn longer than the earth year? (See page 73.)
14. What does the term *in vitro* mean in biological research? (See pages 80-83.)
15. What is the scientific term for artificial production of life? (See page 82.)
16. What is the name of the layer in the egg from which the brain and nervous system are developed? (See page 88.)
17. Are the stars never visible from the surface of one hemisphere of Mercury? (See page 113.)
18. What may be called the most important invention of all time? (See page 127.)
19. What is the relation of Mercury's day to its night? (See page 128.)

Beyond the Universe

By STANTON A. COBLENTZ

As an introduction to Mr. Coblentz's very interesting cosmic story, we refer our readers to the sonnet at the head. Mr. Coblentz has written very beautiful poetry and this is an excellent example of one of the difficult kind of poem—the heroic sonnet.

ACROSS ETERNITY

Ranging the timeless, starry halls of space,
I saw the planets, each a bead of light,
Go whirling round, in pirouetting flight,
Across the heavens' firefly-glinting face;
While the moon—radiant mansion of our race,
Swift-circling as a top amid the night,
Twisted and spun; then waned before my sight,
Turned ember-red, and passed without a trace.

But not a ripple stirred the twinkling void;
The suns and systems swung about the gloom,
Lone and unaltered; silvery fires of birth
Glared from a nebulous mist; and worlds destroyed
Strewed sparks and ashes . . . till, from out their tomb
Rose the pale orb of many a reborn earth.

—Stanton A. Coblentz.

EVER since I was seventeen, I have been obsessed by a strange idea. Even during my freshman year at college, at a time when my companions were more interested in baseball, football and the fair sex, I was pursued, tantalized, almost persecuted by a belief which kept cropping up despite every effort I made to forget it. It was as if some implacable demon had taken hold of me; my thoughts kept turning to the subject of time and space, and of fourth dimensional expanses; and though I had not yet heard of Einstein, I had worked out a theory of relativity whose implications went beyond those of the famous German savant.

How the original notion came to me I do not know; but I became convinced that not only was there no absolute measuring rod for time and space, but that the human mind might under certain conditions transcend both space and time as we know them, might perceive eons in the lapse of what we now regard as seconds, or seconds in the lapse of what we regard as eons; and, similarly, might rise to gaze upon the Milky Way as one gazes on a thimble, or dwindle to see an atom as we see the starry firmament. There were innumerable factors which confirmed this view in my mind, although originally it had come to me more by intuition than by reasoning: the known illusory qualities of sense perception, and the fact that light-rays may be magnified indefinitely

by the microscope and telescope; the existence of micro-organisms which though their consciousness be but rudimentary, must be aware of spatial units too minute for our own apprehension; the fact that insects, with their agile movements and their innumerable wing-beats each second, are evidently attuned to a different time-perception than ours; the phenomenon of sleep, which causes time to pass immeasurably faster than during our waking hours, and yet may give us a long-protracted dream within a moment; the prodigious speed of the waves of light and electricity, which seem adjusted to a different spatial universe than that of our crawling earth-lives; and, finally, the tremendous reaches of past time and the almost inconceivable distances of the stellar universe, which would argue for the possibility of a mind that can look across ages and light-years, as we look upon the life and movements of a May-fly.

This did not mean, of course, that any human mind would ever be able to attain such powers. Yet was it not possible that, if one could slip into another dimension; if one could pass beyond the limitations of our earth-bound bodies and perceptions; if one could glance down upon the whole time-space scheme, instead of regarding it, so to speak horizontally, one might be able literally to peer upon the universe as upon an apple in the palm of one's hand, and might see the centuries and milleniums roll by like ripples on the surface of a stream? To rise to the height and breadth and length of the universe! to see all, to know all, to be a spectator of all the worlds and ages! —such was the grandiose scheme which I formed, and to the consummation of which I consecrated my life.

It is little wonder, therefore, that my companions regarded me as a trifle odd. It is little wonder that they thought me slightly "cracked," when, as a student, I would stay home absorbed in philosophy or would devote myself to investigating some obscure drug in the "chem" laboratory, instead of joining them at a track meet or dance. And it is even less wonder if my colleagues stared at me suspiciously when, after my appointment to an instructorship in chemistry at Bradford College, I still went my eccentric way alone, giving myself to solitary studies and to secret experiments that often would occupy me half the night. From the beginning, I had learned that it was futile to attempt to take any one into my confidence, since my companions would begin by gaping at me as if doubting my sanity, and would end by advising me to "forget my day-dreams." Hence it was a lonely course that I pursued on the way to discovering the greatest of all truths.

Yet I labored persistently, since from the beginning I had not been without a valuable clue. Each human being, it seemed to me, was like a clock timed by nature to run at a certain speed: to perceive the hours and years pass by at a particular rate, to observe space from a particular vantage-point. Change the basic speed of the machinery, however, and one might look upon another dimension: time might go by us at ten times, a hundred times, a hundred thousand times its present rate; space might dwindle to a tenth, a millionth, a million millionths of its present dimensions! But how could this be accomplished? Obviously, by some chemical that would affect the nervous system in such a way as to upset the present gearing of the mechanism. This was already done to some extent, as I knew, by certain drugs, such as hasheesh, which might seem to prolong time incalculably; but it was necessary to achieve

the results on a far vaster scale than anything hitherto attained.

It was to this problem that I gave myself for the better part of twenty years. Often the difficulties in my path appeared insuperable; yet slowly I overcame them all, and by degrees was moving toward success. Through experiments with animals I had ascertained that a combination of morphine, belladonna, and certain rare organic salts, in carefully measured proportions, would affect the nervous system in such a way as to obliterate all common ideas of time and space. Dogs subjected to the combination seemed to fall into a sort of trance in which they were actively alive (heart-beat and respiration were nearly normal, eyes were wide-open and staring, occasional growls issued from their throats); yet they were unaware of the scenes about them, and, upon regaining their faculties, seemed like creatures tormented by bad dreams. Cats and guinea pigs, in their own way, reacted similarly; and one of my laboratory assistants, who chanced to inhale an incautious whiff of the concoction, went off into ecstatic visions like those of an opium smoker, and revived to tell of a dream of seeing the earth dwindle to the size of a pebble swift-whirling through space . . . Clearly, I had no cause to be discouraged!

To report my innumerable precautions and counter-precautions would be to drag out this narrative needlessly; let me therefore pass on to the extraordinary climax of my twenty years of research. Let me tell of that adventure which, unique in human experience, would have justified not only twenty years of effort, but fifty, sixty, or a hundred!

So, at least, I have always maintained, although I know that there are many who think otherwise. To me it seemed that I was reaping a fit return for two decades of toil, when at length I had perfected the formula of my time-space drug and stood ready to perform the experiment that would finally demonstrate its efficacy.

How to secure suitable assistants for the experiments was at first something of a problem. But, after some delay, I managed to corral two fellow chemists, and, on a never-to-be-forgotten thirteenth of November two years ago, induced them to accompany me to my rooms to witness an unusual scientific experiment. Little did they realize how unusual it was to be!

They looked at me a little queerly, I know, as I went through the preliminaries; they passed many annoying questions as to the inhalator I had rigged up, and the arrangement which permitted me while lying on my couch, to breathe the fumes produced by a solution of the time-space drug and conveyed to my nostrils through rubber tubes from the large glass generator at the further end of the room. "What's the matter, Harrington?" I remember one of them asking, with an attempt at jocularity that did not quite conceal his puzzled frown. "Getting ready for an operation?"

"Looks that way!" agreed the other. "Can't you smell the ether?"

"Will you gentlemen please be serious?" I demanded, turning on them with not a little irritation. And then, after they had sobered down a little, I instructed them, "I've brought you here to see that, after the gas-tube has been placed between my lips, it remains tightly in place for half an hour and then is removed. During the interval, I want you to take exact note of my appearance and reactions. That is all! We may now begin!"

Having arrayed myself in a loose cotton robe, a little like a nightshirt, I stretched myself out on the couch, took a long breath, reached for the gas tube,

and—while my assistants stared at me wide-eyed—thrust the rubber nozzle firmly between my lips, and pulled down the gas-release lever.

Instantly the room and my two helpers faded from my vision. Instantly I was overcome by a delicious, exquisite sensation, as though I had drunk of some divine elixir, which produced a feeling of unutterable lightness in my limbs, a sense of well-being such as one experiences on reviving from a refreshing dream. At the same time, I had the impression of rising from my couch, and of moving through great distances with tempestuous velocity. It seemed that all about me was fog and vastness; it seemed that I fled through l i m i t l e s s, labyrinthine corridors; it seemed that a gigantic door slammed shut behind me—and then, as by slow degrees my senses cleared, it came to me that I had stepped out upon another dimension!

I do not claim it was the fourth dimension—it may have been the fifth, sixth or seventh—all that I know is that it gave me a range and power of perception, inconceivable to the ordinary earth-bound man. I found myself—or, rather, some projection of me—suddenly free of the limited vistas of three-dimensional space. I found myself released from my five chained bodily senses; I could see far through time and immensity. It was as if some all-enveloping vision had come to me; I was outside the earth, staring down at our world, which resembled a luminous whirling marble against the satiny black void; staring down at the whole Solar System, whose lighted spheres swung in their orbits about the blazing yellow-white ball that dwarfed them all by its size and fierce brilliancy. Even as I gazed, years and centuries went by; the earth swung in innumerable revolutions about the central orb, and the larger bulks of Jupiter and Saturn whirled through scores of their protracted years, nearly twelve years for Jupiter and nearly thirty years for Saturn.

Yes! even as I gazed, generations were born on our planet, generations were reared and passed away, wars were fought, dynasties toppled, nations crumpled and fell apart . . .

But while these visions came to me, the scale and scope of the spectacle was ever altering. It seemed that time kept moving faster and faster; the planets were rushing about the sun at a constantly accelerated speed, until the revolutions of the earth became rapid as the gyrations of a summer gnat. And, simultaneously, space appeared to be contracting; the Solar System grew smaller and smaller, until its minor fragments were lost from view and there remained only the sun, whose pea-like disk glared from the remote obscurity.

Now the heavens themselves seemed to be drawing down to meet me; I was flying off into the heart of the Milky Way, which moved near with a velocity both terrifying and enthralling. Fascinated, I found myself in the midst of blazing star-clusters, whose myriad suns stared out at me like the jewels of some radiant tiara; with an incommunicable ecstasy, I peered into the abysses of vast gaseous nebulae, all cloudy-shaped and mysteriously glowing; ravished with joy, I gazed at the giant suns, Arcturus and Betelguese, and the red Antares, and at systems of double and triple and quadruple suns with their streams of planets strewn about them through the black void. And all the while I rose and rose and rose, and time—as measured by the movements of the stars—seemed to go by more rapidly; while space—as measured by their dimensions—seemed ever to be contracting.

The spellbound rapture I felt had mounted to delirium by the time the

Milky Way itself had dwindled before me to the apparent size of a lighted window in space; and the whole vast system, with its hundreds of millions of suns and its distances of hundreds of thousands of light-years, had taken on the blurred complexion and the crab-like features of a spiral nebula. But still out and out and out through the silences of immensity I winged my way. Other spiral nebulae appeared, growing larger as I approached, then receding and disappearing to misty points; whole colonies of spiral nebulae, whole galaxies of suns, Milky Ways and super-Milky Ways never reached by the most piercing earthly lens, became visible to my dazzled sight, each constituting no more than a glowworm glimmer against the illimitable night. And there, too, rapidly diminished, until they had all vanished and I seemed to have touched the edge of absolute blackness, from which there proceeded no flicker, no gleam, no motion—the dead blank beyond the living universe, the nothingness at the borders of space!

As I reached this impenetrable verge, my ecstasy mounted to a climax. "Behold!" I seemed to say to myself. "I have become mighty as the cosmos! I have seen through centuries and eons of time! I have voyaged across infinity to its furthest limits! I am mighty as all creation! I am great as God Himself!"

No sooner had I conceived this thought than a chastening answer came from within myself. "Ah, no, little mite, you are still puny as an atom!" And as this reflection thrust itself at me, I seemed to be moving through that blackness beyond the universe—out, out through the further gloom at a velocity beyond the power of words to express or of mind to conceive. Then, after a long, terrorizing interval, other lights began to glimmer out of the distance. And as I drew nearer and could distinguish their outlines, I was as one overwhelmed by a sight too prodigious for comprehension.

I could make out the pale, glowing forms not of hundreds but of thousands, tens of thousands, perhaps hundreds of thousands of minute spiral nebulae, each a galaxy composed of myriads of suns. And these galaxies were themselves combined into a galaxy of galaxies, in which each individual Milky Way was as a separate star. More than that! as my vision expanded, I apprehended that the super-galaxy was itself but a mote in an infinitely larger galaxy of super-galaxies, which itself was apparently—

But here my vision halted. Having traversed the whole visible universe, I had indeed explored but an atom, a mere infinitesimal part of an incomprehensible vastitude. Had I not been like Tantalus reaching for the fruit that ever retreated for his clasp? Suddenly a great feeling of weariness, of smallness, of futility overcame me; the light of the galaxies faded from my sight; in my ears there was a roaring as of a whirlwind; my mind became vague and confused, something seemed to have snapped within me, and I felt as if dropping through bottomless distances.

* * *

When I opened my eyes again, it was to see the sunlight glaring on the walls of a whitewashed room. I was lying on a little cot; at my side sat a white-robed woman who looked down at me solicitously. "Take it easy. Do not exert yourself," I thought I heard her murmur. "You are still very weak."

As she uttered these words, I let my eyes rove about the room, until they chanced to rest on a calendar that hung near the door. "May 13," I read. Could it be that I was dreaming? When I had

performed the experiment, it had been November!

Only by degrees did the distressing facts dawn upon my dazed senses. I was in a hospital—that much was apparent; but at first I did not realize that it was not an ordinary hospital—it was a ward for the insane! Since the moment of the fateful experiment, six months had elapsed! Six months while my mind had wandered through the mazes of another dimension! At the expiration of the specified thirty minutes, no efforts of my assistants had sufficed to bring me out of the deep trance into which I had entered; nor was any subsequent medical attention of the slightest avail. I lay as if close to death, except that from time to time my lips would utter some broken gibberish about stars, galaxies, and nebulae. Hence it had been concluded that I was suffering from some rare form of dementia, and, kept alive by artificial feeding, I was taken to the insane ward. Evidently, in my enthusiasm, I had absorbed an overdose of the time-space drug!

It was with great difficulty that, upon regaining my strength, I convinced the hospital authorities that I was really sane and harmless and might be allowed my liberty. Even so, my friends persisted in believing that I had been out of my head; and no efforts on my part have yet persuaded an incredulous world that I was actually away in another dimension, exploring the far reaches of time and space. It is in order that my case may be more fully understood and the importance of my invention appreciated, that I am entrusting this record to writing. As for the time-space drug—I still retain the formula, and shall be delighted to supply it to any interested person. I have often been tempted to use it again myself; but have resisted the impulse, out of fear that uninformed witnesses might misinterpret the results and condemn me to a lunatic asylum for life.

THE END

A New Campbell Story

OUR readers will be glad to hear that with the January issue we propose giving the first installment of one of the best of John W. Campbell's stories, "The Mother World." This will be a serial story and we are confident that our readers will like it as much as we do. It is one of his most interesting narrations in the field where he had already distinguished himself, the field of the energy of the atom and of interplanetary travel and adventure. In what he tells us of "The Mother World," he gives us a picture of the highly regimented life of future generations and of the conditions which it brings about affecting individuals in their private lives. We read about atoms and the energy of the atom as contrasted to treating it as a wave. We have the picture of the enormous energy of the atom as contained in a given mass of matter, compared with the really insignificant potential energy which its mass may represent. We have said enough to let our readers appreciate the fact that this is a thoroughly Campbellesque story.

Men Created for Death

By HENRY J. KOSTKOS

We read of the world emerging from barbarism, but one man like Shakespeare is not enough to compensate for the misery brought upon whole nations by a Napoleon. The author of our story seems to take this view and presents it forcibly; certainly very few should say that, in the light of modern warfare, we are emerging from barbarism.

Prologue

MEN said: "Peace be with you," but there was war in their hearts. Even as the early part of the twentieth century was marked by the scourge of war, so the scientifically advanced twenty-fifth brought to the earth horrors unknown before. In place of exterminating single battalions, the devilishly improved bacterial and chemical and electrical ray weapons of the "New Age" brought death to the entire population of nations. And when they had exhausted their man-power and their cities were shambles, from the lips of scheming rulers came the cry to unite in the furtherance of brotherly love and international good will—but deep within themselves smouldered fires of hate, and vengeance, and lust for conquest.

Perhaps it was because the "New Age" had wrought such vast changes in the complexity of life, perhaps it was because people recognized the futility of life itself, that they no longer thought in terms of happiness and security, but responded to the call of excitement and rallied eagerly to the banners of their armies. For even with the almost complete mechanization of the modern devices of death, the intelligence of human beings was needed to effectively direct and control these instruments.

In the great world-war that began in 2411 and continued only fourteen months, the population of the planet was reduced from two billion to one half of that number, and that remaining half lay stricken with disease and exhausted by wounds. But the memory of man is notably short; in another decade he had been persuaded by paid propagandists to multiply his race "to protect his country's honor and integrity." Then came the greatest of all wars.

In 2434 President Armstrong of the Atlantic Seaboard States (the United States of five hundred years ago had long been divided into three distinctive national units because of regional jealousies and intolerance), completed a treaty with Western America, the territory beyond the Mississippi River, and the Southern Confederation of States, and the three powerful nations stood as one against the menace of a threatened invasion by the Blacks or the Yellows.

Of the two, the Blacks were more to

Before the Blacks could raise a cry of alarm, two of them dropped as if felled by a thunderbolt.

be feared, for within their giant bodies they had built up a resistance against the deadly "Parallel Rays" of the Americans by injecting into their veins a secret immunizing agent, a solution of a radium salt, that was compounded in their immense laboratories at the mouth of the Niger River in Africa. It imparted to the skin a weird, unearthly, purplish tint that caused it to glow phosphorescently at night like the decomposing body of a corpse.

It was said five hundred years ago, in 1934, that future wars would be waged by scientists. This prediction was borne out perfectly, except that the war of 2434 had for its directing brains a single scientist, that diabolical and cunning genius, the wizened hunchback, Suun Yaar. It was he who developed the fearsome *Bacillus Precipitus* that could be sowed like seeds in the upper stratosphere, far above the range of the "Parallel Rays" of the Whites, to fall upon the cities in a rain of death. It was he who had immunized his fighters with radium salts, and sent them to wreak havoc upon all races who opposed their territorial expansion.

But even as every action must have its corresponding reaction, the western hemisphere, too, produced its men of science to defend its children against invasion. Up from obscurity as a professor of experimental biology in the Seaboard University of Washington, D. C, Paul DuPrey, M. D., Ph. D., came to the notice of the Consolidated War Board by announcing the perfection of his "Ray Barrage." As a means of defense, this appeared to be an answer to the frantic appeal issued by President Armstrong for some means of protecting the innocent non-combatants inland. Every day, squadrons of Black stratoplanes flew overhead and dropped their deadly load of gas and bacterial bombs and loosed the full force of the Seleric Rays (invented by the famous twenty-third century pacifist, Junius Seler, to abolish all wars).

Dr. DuPrey's plans called for a chain of "QN" ray-forts surrounding the entire boundary of what was once the United States, one fort to be placed every two hundred miles. The potency of "QN" rays was almost unbelievable; straight up into the air, fanwise, the deadly beacon of incandescent energy penetrated, reaching high above the stratosphere. No human being, nor for that matter any inanimate object, could withstand the searing efforts of the ray. It would serve as an effective barrier against invasion—until Suun Yaar had learned its secret! How long that would be no one knew.

The construction of thirty-nine forts and equipping them with the ray generators was a task that required time and man power, both of which were at a premium. Each day the fighting took its toll of thousands of men, men who could not be replaced, for the natural increase in the race fell far short of supplying the necessary numbers. It was at this time that the first unit of young women donned their severe powder-blue uniforms and took their place in the ranks of combatants. They fought side by side with their fathers, brothers and sweethearts, and they too died that the defenseless should live. The encouraging news of the completion of each fort was offset by the mounting casualty lists.

In despair, President Armstrong confided to his Minister of Defense Trowbridge: "Even though we do stave off invasion when our ray barrage forts are completed, where will we get men to revitalize the race—who will do the work of the nation?" To the solution of this almost hopeless problem, the foremost scientists of the United American nations now bent their efforts.

* * * * *

THE red calling-light of the private visionphone glowed brightly in the dim interior of the laboratory. Dr. Paul DuPrey's secretary answered it.

"It is the Honorable William Trowbridge, Minister of Defense, calling you, Dr. DuPrey," she announced.

DuPrey reluctantly removed his eye from the tube of a microscope, unslung his long body from the confines of a laboratory stool and muttering to himself about "all these time-wasting interruptions," sat down at the communication instrument. As he flicked a switch, the screen lit up with the image of an intelligent, but very much worried looking individual.

The scientist's heavy voice boomed into the transmitter: "Anything gone wrong with the construction work, Trowbridge?"

"No, no, Doctor. We have just completed the twenty-second ray fort and already the attacks of the enemy are becoming less severe," the Minister of Defense hastened to inform the obviously impatient scientist. Like the majority of his colleagues, Dr. DuPrey was not a diplomat; his temperament would crop up at the most inopportune times, which he later regretted but would not admit for the world. William Trowbridge had not been appointed to a cabinet post without having proven himself a master of diplomacy, and even under the present strenuous world conditions his tones were as smooth as velvet, although his face showed the tell-tale lines of care.

He now ventured an ingratiating smile. "In fact the executives of the nations are unable to find adequate words with which to thank you for your remarkable work, Doctor. The thing is stupendous . . ."

"Do you realize that you are just wasting time, Trowbridge?" DuPrey cut in abruptly, his voice bellowing off into unintelligible mutterings.

The face on the screen winced, then lit up with a broad grin. Trowbridge could project his captivating personality even over the electric limitations of the instrument.

"Thank you, Doctor. I shall leave the citations to President Armstrong. However, there is something that he has requested me to ask you, a matter about which the Department of Biological Research has already communicated with you. I am referring to the appalling shortage of man-power . . ."

A harsh laugh drowned out Trowbridge's words. The massive head of Dr. DuPrey rocked back and forth upon his shoulders as the unrestrained laughter surged from his throat. The minister waited patiently for him to finish, then continued: "Have you any ideas on the subject yet, Doctor?"

The scientist's eyes bulged. "You mean, can I create life—mould men from dust?" he asked incredulously. Then throwing all restraint to the winds he rose in his chair and shook his huge fists into the face on the screen. "Am I a god? Can I work miracles ? No! You fool, no, no . . . no . . ."

Overcome by the vehemence of his own words, he sank back into his chair and closed his eyes and whispered faintly to himself: "After all, why not—there is the Durgstom experiment—I can surpass that—yes, I can try it!"

He lifted his head and looked speculatively in Trowbridge's eyes. "Mind you, I can't promise results, but if you will furnish the laboratory and equipment I will begin work at once. First I will need an isolated site—" and he went on to outline his requirements, his deep booming voice rising to a higher pitch as his enthusiasm increased.

AFTER some haggling with the Consolidated War Board over the proposed location of his biological laboratory, in an almost inaccessible spot high up in the Shenandoah Mountains, the concrete air-conditioned buildings were rushed to completion and equipped with a sample of every conceivable modern biological, electrical and chemical laboratory device. Dr. DuPrey had several reasons for wishing to be away from the large metropolitan centers, the main one being to avoid terrifying the already harassed citizens by the grotesque forms that his creatures might possibly take. To the officials he muttered something about the "clean mountain air precluding the possibility of contaminating the chemical solutions," which seemed finally to satisfy them.

In the beginning DuPrey purposely kept his personnel at a minimum. Too many people just cluttered things up, unless you had a definite task to assign to them. For a while his researches would be of a somewhat nebulous character until he found himself on the right track. Then he could delegate the various tasks to expedite the work.

All foremost in their respective fields, his staff consisted of gray-bearded old Gale Sinclair, M. D., D. Sc., Ph. D., professor of Experimental Embryology at the Western University in California; near-sighted, gaunt S. S. Fairbanks, M. D., specialist in gynaecology in the Michigan Graduate Hospital, athletic young Hamilton Gray, Ch. E., D. Sc., professor of Biochemistry at the University of Georgia, and Dr. DuPrey's secretary and laboratory technician, vivacious Eileen Denison, in whose blue eyes danced a thousand little tantalizing devils.

It was the members of this group, known to one another only by their accomplishments, who were expected to achieve the impossible—the superhuman task of revitalizing the fast dwindling white race. It was true that biologists had taken some primitive steps in the artificial fertilization of reptiles' and birds' eggs even as far back as the early part of the twentieth century, and DuPrey's staff were familiar with the details of Dr. Gregory Goodwin Pincus' work in Harvard's Laboratory of General Physiology in 1930 when he conducted his epoch making demonstration that mammalian eggs could be fertilized *in vitro* (in glass). But now the Consolidated War Board expected miracles that the trend of biological science, during the past five hundred years, gave but scant promise of being possible to achieve. However, Dr. DuPrey had fastened his hopes upon one brilliant light of progress that outshone the thousands of abortive attempts to create life—the astonishing experiment of Dr. Durgstom, now deceased, of the Seaboard University. It was at the first general meeting of his staff in the newly completed main laboratory that DuPrey began to review the work that had been done in this field in the past.

THE four scientists and Eileen Denison sat down around a big conference table in their chief's office. The men sized one another up with the reticent, impartial scrutiny of scientists observing a phenomenon in a test tube. There were no signs of professional hostility nor a conscious desire to be unfriendly, but each man was preoccupied with deliberations that absorbed his undivided attention. Eileen alone seemed unaffected by the solemnity of the group and the serious import of the occasion. She had been chatting brightly with Hamilton Gray, as if she had known him for years instead of first having seen him only two days ago.

"We all know why we are here," DuPrey began in his deep booming

voice. "We will not discuss that. The problem is apparent—a devilishly hard one it is, too—but the solution is the nut we've got to crack."

"I don't know as I quite understand the problem, Doctor," Gray's well modulated voice broke in. "That is, I am perplexed by the purpose of our work here. Yes, Mr. Trowbridge told me that as a member of your staff I was to assist in an attempt to artificially breed men to replace the millions who have died in the wars. Now why in the world should artificial breeding be necessary? Isn't nature's process suitable now, as it has been ever since the world began?"

Dr. DuPrey ran his hand through his shaggy mane and furrowed his brows at the lack of comprehension displayed by some people.

"Nature's methods were quite satisfactory in the past, I assure you, Gray, but she is unequal to the demands of the present," DuPrey returned sourly. "Here, let me start from the beginning and go over the whole thing. Then we'll all be on a par.

"You have the figures giving the population of the consolidated American countries before the wars and now. The truth of the matter is that instead of numbering two hundred million people, we are down to a scant twenty-five million. That is not all. Of these twenty-five millions, only five millions are males."

Grey-bearded old Dr. Gale Sinclair cleared his throat.

"But to raise human beings to complete maturity requires twenty years. Surely it is futile to think that we can stave off invasion that long." Then catching himself, he hastily added, "With all due respect for your effective rays, of course, my dear Doctor."

DuPrey tossed his massive head back and roared with laughter. "Never mind apologizing, Dr. Sinclair, you were absolutely right; it is only a matter of time before the Blacks learn the secret of my "QN" ray barrage—then we will—to put it brutally—be slaughtered without being able to offer the slightest resistance." Then his voice became grave, "Even now, not more than an hour ago I received the very disturbing news that a Black stratoplane had been picked up on the audiometer locating-chart—directly above Washington!"

FOUR pairs of eyes lifted in astonishment, four mouths opened to simultaneously ask: "How did it get through the barrage?"

"By utilizing the cunning mathematics of Suun Yaar, the hunchback of Niger River. Oh, I'm not underestimating the amazing scientific genius of the man. He is undoubtedly the greatest scientist of the New Age. But absolutely ruthless—a diabolical creature, if there ever was one—and almost infallible. Although apparently he hasn't found a means of totally counteracting the force of the "QN" rays. What he has done, however, is this:

"As you know the rays exert their force in a vertical plane, so that any object or body cutting across them at an angle is immediately disintegrated—burned up in a flash. Now, if a superspeed stratoplane were to fly straight upward, almost parallel to the lines of force, yet cutting them at an angle just below the danger point, then it could penetrate safely through the barrage. That is precisely what happened, for when the plane was brought down our fliers found the most ingenious automatic calculating machine acting as the brains, actually piloting the machine through the barrage. So this is only the beginning. We must work fast. We need men, and we need them not twenty years from now, but immediately . . ."

"Yes, precisely," Dr. Sinclair responded, "but that is impossible; I would say preposterous. How do you plan to accomplish it, Dr. DuPrey?"

"By accelerated development of the human animal from the single cell and embryonic stages until it has reached maturity. There are many details which have to be worked out; that is also a part of our task. We'll talk about that later. First, let us take a look at our immediate problem of artificial production of life, or parthenogenesis."

For the next three weeks Dr. DuPrey and his staff, in the precise manner of scientists who have embarked upon a vast problem, repeated the most elementary experiments with the hope that in this manner some valuable bit of biological information, that had heretofore escaped other researchers, would be divulged to them.

The artificial fertilization of eggs had long engrossed biologists. Jacques Loeb at the end of the nineteeth century took the eggs of the sea-urchin and treated them with magnesium chloride, first immersing the eggs in a bowl of sea-water. After several hours he removed them and placed them in plain sea-water and watched them closely. Suddenly, before his eyes, the eggs began to divide and this division, or binary fission, continued until the single cells became a countless number of cells, taking the form of a regular sea-urchin.

Not only magnesium choloride but other chemicals were able to produce the same results. It was found that any material which would cause a swelling or puffing on the surface of the egg was enough to start the process of cell division. Could they produce this swelling by mechanical means? Yes! The simple expedient of pricking the tiny egg with a needle was sufficient. Dr. Sinclair had performed this experiment hundreds of times before his classes and he now repeated it.

The next upward step in the scale was with frog's eggs, and these creatures, too, developed into tadpoles, then into full-grown frogs, lacking nothing not even the croak. But an almost insurmountable difficulty occurred when biologists undertook to evolve a technique for achieving the same result in animals where eggs are not laid.

For centuries nothing noteworthy happened to advance the science of experimental embryology until the brilliant Dr. Durgstom dared to use human beings as his guinea-pigs. And to the joy of scientists a child was born, who curiously enough grew up into an anti-vivisectionist, bitter against the use of animals or human beings in experiments to further the knowledge of biological science and medicine!

WHILE President Armstrong and the entire united American nation waited eagerly for word that a miracle had been achieved in the remote laboratory in the Shenandoah Mountains, their anticipation gave way to impatience as no word came from Dr. DuPrey. Finally in their despair, the fast depleting ranks of Americans indulged in sarcastic and even vicious denunciation of "creation by fool scientists."

If they had only known how ceaselessly the little band on the mountain top labored night and day, if they had only known of the heartaches of Dr. DuPrey as that elusive link that would have spelled success persistently evaded him, and how Dr. Sinclair was temporarily blinded by an explosion of virulent gas, with which he had been treating his egg cells, and how Dr. Fairbanks resolutely undertook to make a thorough study of a living human embryo, and how Hamilton Gray worked for many a forty-eight hour stretch without

rest or sleep, and how the blue eyes of Eileen Denison faded and deep lines furrowed her face, as she kept constant vigil with the scientists in the laboratory, then perhaps the masses would have understood.

The bond of a common cause, of mental anguish and physical suffering shared, had knit Eileen and Hamilton into an inseparable unit. From the first day they had seen one another they both knew that their lives would henceforth be bound up together. It was an unvoiced understanding, a law that governed their actions, even as the laws of magnetism invariably cause attraction between paramagnetic metals. There was scant time for the usual sentimental type of love making. Both were too preoccupied with the stupendous task on hand and neither was of the sentimental type. A soft word, an understanding glance, perhaps a touch of the hand—these were the only physical manifestations.

Exactly six months after the first meeting around the conference table, Dr. DuPrey, aged that many years in appearance, excitedly summoned the group into the specially constructed air-conditioned laboratory of building C-2.

"Shut the door tightly, Gray," he instructed the young biochemist when the staff had assembled around the glass case in the middle of the laboratory floor. The room was devoid of windows, the illumination coming from the Rhomium lights embedded in the ceiling.

"Whew!" Dr. Fairbanks dried the perspiration on his face with a liberal sized handkerchief, "It's hotter than an inferno in here. Did you bring us to this place to sweat the solution of the problem out of us?"

"Not exactly," DuPrey's booming voice sounded strangely discordant in the confined room, "but I have to maintain a constant temperature of 98.2 degrees Fahrenheit, the temperature of the human body."

HE pointed proudly to the glass case with its recording thermometers and numerous other dials and meters. "There it is, in that dish of fluid. Six weeks old!" They peered through the magnifying glass to see a small oval, organic body about three-eighths of an inch long floating in the middle of it. Quite distinctly they could perceive the tiny body pulsating with life within its sac.

"Did . . . did you create it, Doctor?" Eileen asked in an awed voice.

"Yes, not chemically or artificially however, but biologically. The cells of life were united *in vitro,* that is, in a glass flask, and the resultant zygote, or fertilized egg cell was then placed in this incubator. From that time on the cells began to divide and these new cells arranged themselves in a cellular formation around the inner nuclei. Following the completion of this cleavage, the three germinal layers begin to form. It is from these layers that the limbs and all the organs of the body develop."

"But it needs oxygen, Doctor," Sinclair pointed out. "That is where I was stumped in my attempts. How in the world did you manage to provide it with this vital gas?"

"Do you remember that during our previous discussions on this problem I told you that I would attempt to use a chemical rich in oxygen? Well, Gray has compounded such a liquid which you see in that dish.

"Now under normal conditions, the embryo is nourished through a cord of blood vessels, which carry the necessary life giving oxygen to the tiny creature, and at the same time remove the carbon dioxide and other waste products from its blood.

"With my artificial apparatus I have

attempted to simulate the conditions taking place within the human body. You will see the tiny fingers or roots, like fine hairs, reaching out from the sac into the fluid. These pick up oxygen and carry out the poisons which are absorbed by the chemicals.

"However, even though I have succeeded in maintaining life for six weeks, the process is unsatisfactory. That's what I want you people to perfect. See, even now the embryo is assuming a purplish tint. The carbon dioxide is causing toxemia; it can not be absorbed quickly enough when the embryo develops to a size where a larger quantity of the gas is given off."

As the four men and the girl watched, the tiny embryo became bloated with the toxic gas, its color deepened until it was almost black, then it quivered for an instant to float lifeless in the bowl of liquid.

Eileen sighed deeply. "Oh, I am so sorry, Dr. DuPrey, to see success within reach, and then to have this happen."

DuPrey raised his large, shaggy head. His eyes mirrored the soul of a tired old man, weary from work and worry. Even his voice, which had always been deep and strong, now sounded pitifully weak and strained. "Yes . . . It always seems that way, Eileen, just when I feel that at last I have found it—" he smiled bravely, then pulled his long body erect with sudden rejuvenated determination: "But enough of this. The answer is right ahead of us, almost within reach. We can not afford to let down now."

Inspired by the flash of enthusiasm from their chief, the three men and one woman, scientists all, began to talk volubly about plans for nourishing and clearing the new embryos of toxic substances. Before they left the laboratory room, Fairbanks and Sinclair had been assigned to the immediate problem of developing an apparatus that would simuate the conditions occuring within the human body, while Gray, assisted by Eileen, was to concoct from chemicals a supply of "artificial blood."

THE last of the "QN" ray forts was completed. And as if to mock the Americans in their attempt to outwit the genius of a wizened hunchback, named Suun Yaar, who crouched in his laboratory at the mouth of the Niger River, the Black planes cut through the deadly barrage rays in ever increasing numbers, taking heavy toll of lives and destroying structures. Before the defenders could bring their own weapons to bear upon the invading stratoplanes, the invaders dropped their vicious loads, swooped out past the forts and in a flash were beyond reach.

Anxiously now, the Minister of Defense and even President Armstrong himself talked almost daily with Dr. DuPrey. The doctor assured them that he was doing everything humanly possible, and many things that were almost god-like in their mad daring.

Yes, Dr. DuPrey said, he realized how serious things were, but just a little more patience—the great discovery was sure to come any day now, even any moment.

It was during one of these conversations with the assembled chiefs of the Consolidated War Board that the gas alarm sounded ominously through the laboratory buildings. DuPrey excused himself hastily and sprang to the interior phone system. He threw a switch and called all stations. It was the first time that the alarm had operated. This device had been installed as a safety measure, to warn the scientists and the workers on the laboratory grounds of any noxious gases that might be liberated by the enemy.

"Calling all stations, calling all sta-

tions! Picked up a fleet of Black planes on the audiochart; they are directly overhead. Every one inside."

Even as he spoke, the massive gas-tight steel doors of the laboratory buildings rolled together and steel curtains fell over all the windows as the automatic mechanism operated.

"Gray, this is DuPrey. Where are you?"

"In building C-2. Eileen and Fairbanks are with me. Where is Dr. Sinclair?"

"I'm in B-1, everything shipshape here," came the reassuring voice of Sinclair.

Calls from other quarters soon verified the fact that all the technicians and workers were safe behind steel shuttered doors and windows.

Eileen, Gray and Fairbanks watched the recording needle of the audiochart swing down abruptly, indicating that the sound of the enemy's stratoplanes as they descended was being plotted accurately by the sensitive detector.

"They'll be in view in a few seconds now. Watch them on the photo-telescope screen," Gray commanded.

The faint blue field of the screen was suddenly dotted with moving black spots, as if a swarm of mosquitoes had been attracted by its luminescence. The spots became more distinct, larger, and finally took the forms of the familiar stratoplanes designed by Suun Yaar.

Gray called Dr. DuPrey: "Hadn't we better send an emergency message to the War Board?" he asked.

"No need, Gray. I just received a flash from Trowbridge that our fleet will swoop down upon them in a moment. There they are now!"

A SHARP cry from Eileen drew Gray's eyes to the screen. Surrounding the fleet of Black planes came a hundred glistening white ships of the Americans. There in the sky, many miles above the surface of the earth the tensely watching group saw enacted a drama of rare courage. Outnumbered as they were, the Americans flashed in and out through the sluggishly maneuvered ranks of hostile ships, blasting them with their ray guns, ramming them until both the attacker and the attacked plunged to the earth in a flaming mass. The tide of the air battle swung back and forth. Now it seemed that the Black devils would wipe out the courageous defenders, then, out of the maelstrom of flashing and swooping planes, in battle formation, would come a squadron of American ships to deal death and destruction to their enemy.

So engrossed were the occupants of the laboratory buildings in this drama that they had not seen the Black plane which had eased down upon the laboratory grounds. This one settled as lightly as a feather, in contrast to the heavily falling masses of disabled planes that now covered the landscape. The doors swung open and out came a score of black giants, weird and formidable in their steel gas masks. Slowly they advanced upon the laboratory, the shuttered doors and windows of which precluded any possibility of those within seeing what was taking place outside.

"Listen!" Eileen put her fingers to her lips, "do you hear that?"

From without the sound of harsh gutturals came to them faintly through the walls. At the same time the loudspeaker boomed with the voice of Dr. DuPrey: "Gray! Gray! The Blacks—they are creeping up on your building. Just landed from a plane." Then in a louder tone came his command: "Calling all stations. Stand by to repel invaders. Watch out, I'm giving them a shot of Seleric rays—here goes!"

The Blacks outside heard DuPrey's voice. They let loose a blood-curdling

shriek and rushed for the closed door.

"Raise the curtain on that window," Gray shouted to Fairbanks, "just slightly, so we can see what the devils are doing. "Here—he thrust a wicked looking instrument of gleaming metal into Eileen's hand—"take this electric pistol—in case they should get in."

As the steel curtain rose in response to the pressure on the control button, the scientists in the laboratory could see a score or more of gigantic black creatures, their ugly features hidden behind the gas masks, massed around the door.

"Gray, it's no use," DuPrey's voice shook with consternation, "I gave them the full power of the Seleric rays—but they are still there."

In an instant Gray leaped into action. There was no time to lose. Even now the Blacks were searing a hole in the door with a hand-disintegrator. They must be driven off now, at once.

"Listen, all stations. Put on your gas masks. Get ready with the electric pistols. We will leave through the rear exit. When you see us come out, rush them!"

He hurried Eileen and Fairbanks to the rear of the laboratory even as the flames of the disintegrator roared through the cut in the steel door. All told there were, in addition to the four scientists, six men on the grounds. Would they all respond? He thanked his stars that the ten young women who had volunteered their services in the laboratory, had left that very morning. But there was Eileen; she must be protected at all costs.

"When we drop to the ground outside, you hide in that clump of bushes until we divert their attention, then make for the woods where you will be safe no matter what happens."

She began to protest, but he cut her short with a whispered plea: "Please, Eileen, for my sake." And she nodded reluctantly.

GRAY quickly raised the shutter and dropped to the ground, then beckoned the others to follow.

"Now, Eileen, go to it," and with a heavy heart he watched her disappear from sight in the dense shrubbery; it might be the last vision he would have of her.

Cautiously the two men stole around the corner of the building. Before the Blacks could raise a cry of alarm, two of them dropped as if felled by a thunderbolt. Then the doors of the other buildings opened and out tumbled the scientists and technicians, all eight of them!

With a howl of rage the Black giants turned and drew their flame knives. But the Americans closed in on them and in the thickly packed jam of human bodies the devilish weapons of the invaders could not be used. It was hand to hand, with the cunning and craft of the Whites pitted against the relentless force of the Black giants. In their gas masks the desperate fighters breathed laboriously. Unfailingly the arms of the defenders rose with their clubbed pistols to come crashing down upon thick black skulls. But the Whites were outnumbered almost two to one. It would only be a matter of moments before the uneven fight would end disastrously for them. Already the huge body of DuPrey was sprawled on the ground and two of the laboratory technicians followed.

Just as Gray thought that his failing arms would give out and his legs double up under him, the giant who was evidently the leader of the Blacks gave a cry of rage and pointed. To Gray's ringing ears came the roar of flames. The Blacks had ceased fighting and looked in the direction of their plane.

It was a red inferno of fire.

As if of one accord they rushed toward it to quench the flames, just as a slim, gas masked figure ran from the burning mass.

"Eileen!" Gray cried. "God, they'll get her. Give them the electrics, men!" And suiting the action to his words he opened fire as his companions let loose a salvo of high explosive electric bullets. The giant Blacks were mowed down like wheat before a reaper, and before their bodies could strike the ground, the powerful charges had seared them into carbon.

Gray ripped off his mask and gathered Eileen into his arms. "You little fool! You dear little fool!" He smothered her with kisses in front of the grinning scientists and technicians.

FOUR huge battle planes of the Americans settled down after it was all over. From Minister of Defense Trowbridge came abject apologies for the danger to which the scientists had been exposed. He would make sure that such a thing could never happen again, for, from that day on, a company of soldiers would be encamped on the grounds and two pursuit planes would be kept in hangars ready for immediate duty.

It was soon after the dramatic, and almost fatal attack by the Blacks that Eileen began to show the effects of overwork and much against her wishes, Gray bundled her up and flew her back to her folks in Washington. When he returned he pitched into his researches with a dogged air, but his mind kept returning to the girl, worrying about her more than he cared to admit. And at every opportunity, whenever he could snatch a few hours from his labors, he dropped down out of the sky on the lawn of her father's place and spent a few precious moments with her.

In the laboratory, Dr. DuPrey, for the first time in many months, went around with a smile on his face. He rumpled the matted hair on his shaggy head less these days, as the experiments were begining to bear fruit. The four scientists, working in closest collaboration upon the problem of nourishing the embryo in the same manner as is provided for by mother nature, at last saw the light of success. To whom the credit for the ultimate achievement could be given was hard to determine: Dr. Fairbanks by his patient researches had provided the blue print for the theoretical incubator, Dr. Sinclair had constructed the artificial chamber wherein the embryo was housed, Hamilton Gray had compounded the chemicals, the "artificial blood" upon which the embryo existed, and Dr. DuPrey, hovered over all like a guiding angel. And greatest of all achievements, he developed the connecting link of blood vessels between the tiny pulsating organism and the inert chemicals.

As the four looked with pride upon their handiwork, the embryo within the incubator grew rapidly in size until the details of its external organs were clearly defined. To all appearances the tiny being was perfectly normal. But still Dr. DuPrey was not satisfied.

"This is only the first stage. You recall that in one of our early conferences I spoke of the problem of accelerating growth?

"But I can not afford to speculate upon that," his deep voice boomed irritably. "We are scientists, and we are confronted with the most stupendous set of problems ever to be placed before any group of human beings. We have already accomplished much, far more than we had dreamed was possible, but much more remains. Oh, I don't want to preach; I just want to get some of this off my chest. Yet I suppose I

feel just as proud as any one, over what we have done."

HE peered in fascination through the glass incubator at the tiny embryo, and whispered softly: "Our little creature, created for death."

The other three men said nothing. As scientists they had been trained to look upon their products with the cold precision of master workmen, unbiased, unswayed by human emotions, cold, calculating. Yet when confronted with this evidence of life that sprang from a test tube, they were strangely silent.

Finally Sinclair asked: "Shall I make my report on accelerated growth, Doctor?" And as DuPrey nodded, he began:

"I believe that we can greatly speed up the process of cell division so as to accomplish our ultimate aim of producing full grown men and women within a relatively short period. We have tried the effect of temperature, electricity, chemicals, gasses, and in fact every conceivable agency, and have accumulated volumes of data on the subject. For example, in repeating Oscar Hertig's classical experiment on frog's eggs, we find that these eggs develop at their normal rate at 60 degrees Fahrenheit. Raising the temperature in the incubator to 72 degrees doubles the speed of development.

"Now the same experiment performed with a human embryo gave me negative results, but when I increased the quantity of oxygen simultaneously with the rise in temperature, something startling happened. One of the layers of cells, the epiblast, into which the germinative area of the egg split, developed abnormally. From this layer is derived among other organs, the brain and nervous system. As it developed, it turned into a veritable monster, with a giant head and normal sized body. Unfortunately, or perhaps fortunately, it did not survive beyond seven weeks. But I have it here in this jar."

He displayed a small jar with the embryo floating around in the solution. Doctors DuPrey and Fairbanks, and Hamilton Gray examined the tiny monstrosity through a magnifying glass. The form of the embryo, including the enormous disproportionate head, was quite regular. It was apparent that the remainder of the body had not suffered in the least because of the abnormal growth of the head; it was just a case where the rate of growth had been greatly accelerated in one portion of its body.

Dr. Sinclair set the jar down and opened his black note book.

"Now when I discovered that growth could be accelerated in one part of the embryo, it seemed like a simple task to do the trick for the entire body. But I'll have to confess that I haven't found the combination yet. Gray, however, experimented with a specially compounded gas of his, that is extremely rich in oxygen and has in addition other constituents that supply bone and tissue building substances directly to the cells —let's see—here it is. He calls it Oxythusol-cal—" he stopped and whistled, as with a wry face he contemplated the half dozen lines of neat hand-lettering that were needed to name the new compound, then held up the note book for scrutiny. "Anyhow, here it is, formula and all. If we can manage to induce the embryo to absorb this gas, I believe that we will have the answer to our problem."

UNAFFECTED by premature enthusiasm that often results in hasty, skimping technique, the group doggedly set to work on the latest phase of the development. Unmindful of the increasing anxiety and the panics in the outside world, the four scientists and their assistants labored incessantly day

after day and often far into the night. The reveille and taps, blown by the buglers for the benefit of the encamped soldiers, meant only the beginning and the passing of another precious day, when days, even hours and minutes, might mean the difference between victory and death in that last inevitable struggle between the Americans and the invading Black devils.

Two months of ceaseless work. Then one fine June day Dr. DuPrey calmly lifted up the visionphone hand set and dialed the private number of Minister of Defense William Trowbridge in Washington.

"Ah, I'm glad to hear from you, Doctor, is there good news?" The pale blue screen of the instrument revealed a strange apparition, a relatively young man grown prematurely old from the devastating cares of the past months. DuPrey could hardly suppress a gasp of astonishment at what he saw on the screen.

The doctor eased himself down into a chair. His staff waited expectantly for him to reply. In his deep voice he spoke into the instrument:

"Your Honor, we now have in our incubators a potential future army of ten thousand men who will be ready to bear arms by next February—eight months from now!"

The face on the screen was transformed from a picture of dejection to a countenance that flashed revived hope. From Trowbridge's eyes there sparkled a fire, newly fanned into flames.

"What?" he shouted, "Do you really mean that, Dr. DuPrey? Why man, I could almost hug you."

"I wouldn't get much of a kick out of that," DuPrey remarked wryly. "Yes, we really mean it. And the credit goes mainly to my staff—but then true scientists never seek credit. That's why they always die in poverty—"

"I know four of them who won't have to worry about that," the Minister of Defense broke in exultantly. Then: "Did you say ten thousand? Is the process very elaborate—that is, can you increase the number of people you are creating, Doctor?"

"We're not creating them. Merely uniting the gametes, or germs, in an incubator and speeding up the life-growing process. You see, under this condition, the embryo develops from a single cell into a lusty infant in ten days instead of the normal period. And we are quite sure that it will continue to grow at the same rate from then on, so that a man or woman will reach the age of twenty years in nine months."

"Splendid," Trowbridge c o m p l i mented, then he furrowed his brow into a frown. "But this idea of men and women—you know, my dear Doctor, that even now we have too many women—not that we want a world devoid of the female sex—but we have a dreadful and devastating war to wage, a war to the finish. And we have found women wholly unsuited for the rigors of battle; they are such beautiful creatures but so frail. Now, Doctor, would it be possible to insure having all males?"

EVEN before Minister Trowbridge finished enunciating the last word, Doctor Paul DuPrey exploded. He shook his massive head angrily and clenched his huge, hairy fists at the image on the screen. "Aren't you people ever satisfied? Any fool can sit back in an over-stuffed chair and shout unreasonable demands . . ." There followed a string of invectives that brought the fiery red to the cheeks of the man they were directed at. As quickly as he had flared up, the doctor's bellowing voice died down to a soft rumbling. His eyes lost their fiery stabbing darts, be-

came rational. Then in an even tone he spoke to the man: "I'll tell you what we *can* do, Mr. Trowbridge."

"What is that, Doctor?" the minister asked hopefully.

"We can take a score of our six-week-old embryos, excise the tissues of their brains, and insure the production of twenty world-renowned, smooth talking, vacuum-headed, Ministers of Defense!"

DuPrey flicked off the vision-phone switch with a smart tap of his forefinger, carefully laid the hand set in its cradle, and leaned back to enjoy a luxurious yawn.

To say that his staff were startled was putting it mildly. As much as they were in sympathy with their chief, his actions had come as a violent shock to them, and it was some moments before they recovered their breath. Then Gray whistled softly.

"Wow! Did science triumph over diplomacy that time? I would say that our good friend William Trowbridge will undoubtedly send a polite note severing diplomatic relations with the Four Intrenched Scientists of Shenandoah Crest."

The humor of the situation permeated to the others as they sat back and chuckled softly. Not for a moment did any of them think that even the vitriolic tongue of Dr. DuPrey could humiliate Minister of Defense Trowbridge. The man was too well versed in the subtle art of strategy to permit any one's actions to divert him from his original intentions. The expected call came promptly, the red signal light flashing on the vision-phone panel. DuPrey motioned to Gray to answer it. The perfectly composed face of Trowbridge framed in.

"Ah, Mr. Gray, President Armstrong would like to speak to Dr. DuPrey," and as the commanding countenance of the President of the Atlantic Seaboard States and the commander-in-chief of all allied Americans replaced that of his minister, Gray mutely handed the instrument to DuPrey.

"Yes, Your Honor." The scientist now quite sober, expected some reprimand, but instead, the President offered his congratulations, then launched into the details of a stupendous plan for increasing his armies by as many thousands as could be provided in accordance with DuPrey's new development. The President switched in the conference circuit to enable his entire cabinet and Board of Strategy to take part in the discussion. In the laboratory, the doctor also indicated to his staff that they should take part freely in the planning.

AFTER being assured that the process was entirely fool-proof and could be extended on a production basis, the President asked for the creation of a huge army of one million men within as short a space of time as possible. For this purpose he was told, it would be necessary to erect suitable laboratories and nurseries in various sections of the country as the "Chromosomians," as the artificially propagated creatures were called, could be better handled and more safely regulated when restricted to smaller units.

"You see," Dr. DuPrey pointed out, "while physically, the Chromosomians will be identical with human beings born in the normal manner, we have no way of predetermining their mental reaction. The speeding up of the growing process to an abnormal extent might not give their nervous system sufficient time to develop. Anyhow, while hoping for the best, we would advise caution."

The President and his cabinet agreed that DuPrey's expansion plan was sound, and at once issued orders to erect the laboratories and equip them. There

were to be three new units initially, in addition to the Shenandoah Crest Laboratory, each to be in charge of a member of Dr. DuPrey's staff.

Then when all preliminary plans had been discussed and the two groups were about to disconnect, Dr. DuPrey cleared his throat and without any preliminaries, boomed:

"Mr. President. I believe we can do it!"

President Armstrong looked puzzled, then catching a signal from his Minister of Defense, he responded with an encouraging smile: "Yes?"

"An idea just struck me," DuPrey continued, "it's all quite technical—but we will begin at once our research work on the production of men only."

And as the picture faded from the screen of the vision-phone, Gray caught a knowing wink in Minister Trowbridge's eyes.

THE work of erecting and equipping the three new laboratories, or "Creatoriums," was begun; the Black stratoplanes flew overhead in increasing numbers; the male population of the allied American nations kept decreasing rapidly as the casualties mounted among the defenders; and President Armstrong's raven black hair turned white while the four scientists labored on the huge assignment of developing an army.

They repeated every known experiment before tackling new paths of research. There was again that classic experiment on frog's eggs to start with. By exposing their eggs to high temperatures, placing them in acidified water, or allowing them to become overripe, the proportion of males to females could be greatly increased.

This was well enough in the case of frogs' eggs, but mammalian gametes did not react to these stimuli. There followed many painstaking experiments.

The single cell was subjected to every conceivable chemical, mechanical and electrical treatment in an effort to influence the sex-determining chromosomes. But the results were discouraging; the proportion of males to females was no greater than chance.

Gray had been working feverishly by himself in the high-frequency electrical laboratory during the period his colleagues were laboring in close collaboration. He had built a machine that was capable of generating a current that exceeded the frequencies heretofore considered the highest practicable. He conducted this current through a vacuum tube oscillator that could be tuned with precision to alter the characteristic of the output.

Into a warm chemical solution Gray carefully placed one hundred primitive life-cells selected indiscriminately from among thousands. According to the laws of chance the number of females resulting from ordinary incubation would have been approximately fifty per cent.

Many times before, Gray's colleagues also had placed one hundred cells under controlling media and each time hoped fervently that they would respond to the treatment. But each time the resulting embryos were divided equally between males and females.

Now the young chemists felt deeply within himself that this experiment would lead to something basic, that would perhaps give his fellow scientists a fresh trail to follow to its destination. Having been disappointed many times previously, he gave no indication of his hunch to the others.

After the hundred cells had been immersed for five minutes Gray started the motor-generator set. The high pitched whine of the machine mellowed out into a pleasant musical note as the generator turned up to full speed.

WITH his eyes glued to a wide-field microscope, the chemist slowly turned the rheostat that controlled the intensity of the current, then eagerly pushed a button to close the circuit through the solution.

Even as he watched, the gelatinous mass of protoplasm, that was a life cell, palpitated under the surge of high-frequency current. Resolutely he increased its intensity at the risk of extinguishing the spark of life in the cells, then after fifteen seconds shut off the generator.

Now he began to work feverishly, glancing nervously at his watch. He hardly waited to properly house the tiny cells in the incubators and give some rapid instructions to his assistants before he rushed out to the hanger and into his plane to be off to Washington and Eileen.

It was not until ten days later that he returned. The moodiness which had heretofore characterized his manner had given way to a buoyant cheerfulness that made his eyes shine with a happy light. He approached the main laboratory building confidently. He did not think of the possibility of failure nor fear Dr. DuPrey's censure for his having left without approval.

As he opened the door of DuPrey's private office the old scientist wheeled in his chair.

"Where in the devil were you, you young imbecile?" DuPrey roared.

Gray gulped and searched vainly for words.

"And what, in the name of Merlin the Magician, did you do to those cells before you left?" DuPrey continued his interrogation, now with a suspicious twinkle in his eyes.

"Why? Did they fail to develop, Doctor?" the chemist asked with a heavy heart.

"Thunderation no! You've got a brood of one hundred youngsters born to-day, and ninety-eight, do you hear that?—ninety-eight of them are boys! Now you had better think fast and explain it, unless," here the doctor's voice became tinged with disappointment, "your success was due wholly to chance."

A feeling of elation lifted Gray's voice to a triumphant pitch.

"No, I can assure you, Doctor, that it wasn't merely good fortune. Those cells had been subjected to a controlling process—a high frequency current that influenced the sex-determining chromosomes. It might have been luck that enabled me to find the proper circuit characteristic, but from what you have told me about the results it appears that we are now on the right trail."

Enthusiastically, his eyes flashing with the thrill of discovery, Gray explained his experiment in detail, illustrating his remarkable development by an actual demonstration of the action of the high frequency generator in the laboratory.

DR. DUPREY beamed his pleasure. He smiled upon his young assistant fondly, then suddenly asked:

"Is Eileen up and around again?"

Gray nodded happily.

"She certainly is, Doctor. And what's more I'm bringing her out here next Sunday. She just can't stay away from the old gang and she wants to help take care of those young Chromosomians of ours. She feels sorry for those thousands of motherless babies."

"You may tell her that we'll be more than glad to have her. If she can aid in keeping them quiet she will earn my undying gratitude. The way they cry and howl can probably be heard by her all the way to Washington," DuPrey laughed.

Eileen's stay lengthened from an overnight visit into days, then weeks. She

displayed a truly motherly interest in the ten thousand infants that were rapidly growing into healthy boys and some few girls. Under the care of several hundred white-uniformed nurses, who not only tended to the early wants of the children, but in addition undertook the Herculean task of teaching them the subjects that their fast growing brains assimiliated like sponges soaking up water. The problem of instruction soon became an acute one. The greatest psychologists in the country bent their efforts to formulating a course of instruction for the accelerated intelligence of the children. When it is remembered that the growth of these Chromosomians was speeded up twenty-seven times and they matured at the rate of one year in every thirteen days, the magnitude of the task confronting the instructors can be appreciated.

At three years of age the boys and girls were segregated and taught separately, the girls the technique of nursing and the mechanical crafts, the boys the science of war. Thus each group was moulded early to fit the pattern for which it was destined. Hamilton Gray, now that his biological researches were nearing completion, began, when the first brood of boys reached the age of six, to teach them the rudiments of chemistry. Following this he planned to impart to them the mysteries of lethal gases used in warfare.

Of all his pupils, none interested him more than a sturdy blue-eyed lad who was designated "Chromo A-100" according to the system of identification established. Chromo A-100 possessed an intelligence so far above his mates that he stood out from the thousands of boys in the group. It was for this reason that Gray chose him for his assistant and undertook to tutor him far into the night, with Eileen sitting patiently near by.

IT was on the night of December 24th that it happened, on Christmas Eve. Now that the three new creatoriums were ready for occupancy, Hamilton Gray would leave in a few days to take charge of the laboratory on the west coast, Dr. Sinclair was to guide the destiny of the one in Louisiana, Dr. Fairbanks was assigned to take over the Ohio plant, while Dr. DuPrey would remain in charge at Shenandoah Crest.

It was really a farewell dinner that the four scientists were enjoying in their laboratory lounge room. After the dinner they drew up their chairs and sat back to chat about those inconsequential details that men often speak of, when their minds are heavy with thoughts that they would rather not express. The winter wind howled dismally outside and a flurry of snow drove under the eaves of the building. Inside it was warm from the radiant heat supplied by the solar-ray storage system that automatically maintained a constant temperature.

In looking back over the suddenness of it all, none of the four could give a coherent account of just what took place. First, the Rhomium lights began to flicker just as lights do when the current is temporarily short circuited by poorly insulated wires swaying violently together in the wind. Then an odor of decaying, putrid animal tissue impinged upon their nostrils. Thereupon many things happened at once—the light went out—a strong breeze wafted the nauseating odor into their lungs—a deafening noise like a thousand thunder claps rent their ear-drums—then a haze came over their minds. They all remembered a feeling of being lifted bodily and whisked into the air before they lapsed into total unconsciousness.

Slowly Hamilton Gray opened his eyes, a task requiring much mental effort as the muscles of his eyelids were

reluctant to obey the impulse sent from his brain. When he attempted to lift his head, things began to grow black again, so he was content to lie back and look around at his surroundings. There were innumerable metal girders stretching away as far as he could see in the dim half-light. He felt around—metal, smooth and covered with drops of moisture. There was a faint, droning noise, and once in a while a slight swaying motion. There could be no doubt of it. He was in the hold of a submarine! But how? Then he remembered the terrifying happenings back in the laboratory. It must be the work of the enemy, no one else would have engineered it. But where were his colleagues—and Eileen? Trying to puzzle this thing out made his head whirl until he was forced to close his eyes. He had that drugged feeling, caused no doubt by the nauseating stench that had overpowered him. Taking a firm grip on himself he arose to his feet, and supporting himself against the metal ribs of the vessel he stretched out his leg to take a step, then drew it back with a cry of pain. He felt a sharp stinging in his foot and heard a crackling sound. Gingerly he stretched out his arm, and immediately snapped it back. Then he tried in the other directions; the same thing occurred. "Electric rays," he muttered, "more effective than a cage of steel"

AS he sat down resignedly, a harsh guttural voice with a foreign accent broke the silence of the hold. It came from an interior phone system concealed somewhere overhead: "Hamilton Gray, you are warned against venturing to move about. What you felt was only a harmless sting; next time it will be more powerful. As long as you remain quiet you will be safe."

That was all. Gray shouted a question, but the only reply was a metallic echo, and from somewhere in the distance a harsh laugh. Glumly he sat down to take what fate and his captors had in store for him. He had no idea how long he had been unconscious, except that his stomach told him that he had missed several meals. Except for an occasional lurching, the vessel appeared to be stationary, yet he sensed that it was moving along at a tremendous speed.

After what he estimated to be a lapse of two or three hours, the metal under him began to vibrate as if some object was rolling along it. He peered into the gloom of the distance to see a metal box rolling toward him on rubber tired wheels. He drew aside, thinking that it would pass by, but was surprised when it stopped abruptly in front of him. A pair of metal doors opened and the aroma of warm food greeted his nostrils. Sure enough, neatly arranged on trays inside was a meal fit for a king. He devoured the savory morsels with relish, then feeling far more comfortable, he again essayed to push his way past the barrier of electric rays. This time the sting was more severe, causing a red welt that rose into a huge blister on his ankle. And again the harsh laugh came irritatingly to his ears. Whoever his captors were, they did not intend to be trifled with.

The food he had eaten made him drowsy and he fell into a deep sleep. When he awoke, he was in entirely different surroundings, lying on a couch, with a group of black-faced giants silently watching him.

Quickly he pushed himself up on his elbows and blurted out the first words that came into his head: "What do you intend to do with me—what happened to our laboratories and to my colleagues?"

One of the group walked over to him and bared his huge buck-teeth into

what he doubtlessly intended to be a smile, but to the man on the couch it appeared more like a snarl. This must be their commander, Gray reasoned, plenty of gold braid and glittering medals on his bright red uniform, like a comic opera admiral.

"YOUR colleagues, Meester Gray, they are I think safe on deeferent ships, sailing for a nice long visit with his most Imperial Highness, Suun Yaar, Emperor of the World!"

At the sound of the name of the hunchback genius, the circle of blacks bowed their heads and muttered something to themselves. Gray sat up with a start.

"Emperor of the World?" he almost shouted. Was this a part of the comic opera, too?

"Yes, Meester Gray, by now the Blacks have taken over your country. On your Christmas Eve we swooped out of the oceans, up into the stratosphere above America. And who can tell how many people died?"

Was the man deliberately lying to him for a purpose? He had no way of knowing for the black ugly features conveyed no signs that the scientist could interpret. He determined to try another tack.

"You say that you are taking us to visit Suun Yaar. Why should the Emperor of the World be so interested in a few scientists when he already possesses powers far greater than any man yet born on this planet?"

The Black shrugged his gold-braided shoulders.

"That I do not know. My duty was to bring you back safely. We brought you up here to keep you in the best condition possible. In three hours we arrive, then you shall know." With a flash from a row of immense white teeth, the medal-bedecked Black motioned to his men to leave; then as he followed them through the door, he threw back over his shoulders the parting injunction that the white man was to remain in the cabin and create no disturbance.

Gray paced angrily up and down within the close confines of the room that was no larger than a cell. What the devil did that ugly black-faced hunch-back, Suun Yaar, mean by ruthlessly swooping down out of the sky and gathering up the American scientists and rushing them to his headquarters? The thought of Eileen and his bright-eyed protégé, A-100, being left exposed to danger, while he was absolutely helpless to defend them, put him into a black mood. To attempt resistance on board of the submarine he dismissed as futile, even before the idea had taken full root in his mind. Even if through some chance he succeeded in gaining possession of the vessel, he could never hope to navigate it alone. Then where would he go? If what the Black commander had told him had any semblance of truth, he could not hope to accomplish anything by rushing back to America. No, he would see this thing through and bide his time.

Suddenly the ship lurched backward, throwing him off his balance. Then the floor pointed up an an angle of thirty degrees. They were rising. He looked through the single port hole that had heretofore revealed nothing but black muddy water, to see it graying as the ship rose toward the surface. Then the ripple of the water could be seen as the submarine broke the surface. But to his surprise, the floor did not drop back to a level plane as would have been the case if the ship was to continue along the surface, but pitched up at an even steeper angle. From somewhere below him came the whine of motors and a heavier vibration as additional power was cut in, then a churning of

water, followed by a rapid upward gliding motion.

Gray pushed his face close to the port hole. The sea fell away below him, and the submarine was rising rapidly into the air! Up, up it went, until the water was a nebulous surface far below. Clouds drifted by. But still the ship continued upward under the thrust of the powerful motors until Gray felt positive that they had entered the stratosphere. Come to think of it, he had heard about the wonderful amphibian stratoplanes possessed by the Blacks but he had never given much credence to those wild conjectures.

AFTER some time the plane came down out of the clouds to find itself above the tops of high trees and steaming jungle swamps. Soon it reached a clearing where it came to rest on a level, concrete landing platform flanked by huge towers of gleaming metal, cut by thousands of circular windows. This was the secret city of Duurkbar, built by the Blacks on a high veldt in central Africa. Duurkbar was the fabulous capitol city, the headquarters of the vast empire of the Blacks, and if Gray was to believe the words of the red-coated commander, now the capital of the world. Suun Yaar must have moved inland from the mouth of the Niger River when he ascended to supreme power over the empire.

Hamilton Gray held himself erect as he marched out on the gangway between his guards and glanced out over the heads of thousands of black giants who had assembled to see the ships come in with their captives.

"His Highness has commanded me that you be brought into his presence immediately upon landing, Meester Gray," Red-Coat grinned his toothsome smile. "He is in his throne-room up there in the top of the royal tower."

Gray glanced up in the direction indicated by the man. Accustomed as he was to the two thousand foot buildings of America, here was a tower that would dwarf the tallest structure ever erected by the most daring of the new world architects. Perched at its very summit the throne room pierced the clouds at an altitude of no less than five thousand feet. For what reason other than to satisfy his *ego*, could any man want to build such an edifice, where acres of land were available on the broad veldt for horizontal expansion

As he was led through the arched doorway a number of giant Blacks in uniforms, even gaudier than that affected by the commander of the ship, fell into the ranks in front after a few curt words with Red-Coat, and led the avalcade into a small room. Gray saw an attendant close the door and press a button. The door was opened a few seconds later, and they all marched out. As they passed a circular window, Gray glanced out, then started back in unbelief. A mile below him were the streets of the city and tiny pin heads which were men! Without having felt the slightest sensation, they had been lifted up more than five thousand feet almost instantaneously.

Through a long hallway resplendent in gleaming metal walls and arched ceilings they marched. Every ten feet the passageway was flanked by guards in cloth-of-metal uniforms that matched the walls in texture. At a huge studded door they stopped. The Blacks bowed their heads, while their supreme in command chanted: "To his Imperial Highness Suun Yaar, the Lord Emperor of the World, we bring from America one, Hamilton Gray."

Slowly the door swung on its ponderous hinges, revealing beyond it a vast chamber, magnificent in a crescendo of varying luminescence. To Gray's daz-

zled eyes it appeared like the meeting house of all rainbows that had arched the sky since the world began. So regulated was the lighting, Gray later discovered, that it would respond instantaneously to the varying moods of the Emperor. There was no doubt that the dramatic effects had been well thought out by the scientific mind of Suun Yaar.

AT a trumpet-like blast the group advanced into the chamber toward the far end, where a black velvet-covered dais rose high above the level of the floor. A massive metal chair, large enough to contain a half dozen men, was unoccupied. Very carefully the leader guided the group to a precise spot to the right of the dais. Except for themselves, the vast chamber was empty. Yet at the stroke of a silvery gong, a mist, like the vapor from a volcano, came up out of the floor, enveloped them for an instant in its inpenetrable mantle, and receded as quickly as it had formed. Gray jerked back with unbelief, then rubbed his eyes vigorously.

There, not twenty feet from him, surrounded by a score of Blacks, stood Fairbanks, Sinclair and DuPrey!

He shouted. They too had spied him and started in his direction. Harsh, guttural commands were hurled across the chamber, and the guards grasped each of the Americans in a firm relentless grip that they could not struggle out of, and held them rooted to their positions. Even though he could not reach his colleagues, a weight seemed to have been lifted from the mind of Hamilton Gray. Now if only he had an assurance that Eileen and A-100 also were safe, he would have been perfectly contented.

Once again silence pervaded the chamber. Then a crash, musical like the sound of golden cymbals, came from behind the throne. The lights dimmed; then flared up brighter than before, to reveal His Imperial Majesty, Suun Yaar.

The Blacks bowed their heads, but the white men looked fearlessly upon the wizened, ugly face and malformed body of that extraordinary combination of scientific genius and potent political power. The man's eyes burned right through one—eyes that could hold strong men under their hypnotic spell. As Gray looked he felt the power of the man, the mesmeric force that had enabled him to command thousands to do his bidding. Leaders of the past had possessed this ability too.

"MEN of science," Suun Yaar's voice was strangely soothing, as he looked at the four Americans in turn: "I find that you have discovered a secret which I had not the time to fully develop. That you are the enemies of my country we will forget, your country will soon be mine."

A ray of hope darted into the breast of Gray. So, America had not been overpowered yet. Red-Coat had lied. He listened intently to the words of Suun Yaar.

"The purpose for which I commanded you to be brought here was to finish this work for which my other duties permit me no time. You will be given laboratories and equipment far more modern than any of you have used before. It will be your task to resume the work that you left off in America. But this time your product will be black, instead of white. Blacks who will rule the world very soon. Then we have other planets to conquer—for is it not written in the Book of Fates that Suun Yaar is destined to be the ruler of the universe?"

Carried away by the enthusiasm of his own utterances the hunchback paused for breath. His followers again bowed their heads as if in supplication for the fulfillment of their ruler's wishes. The

American scientists glanced significantly at one another. No doubt of it, the black dwarf was drunk with power.

He continued in an oratorical streak, more to impress his followers than for any further effect on the whites who were paying but little attention to him. Gray attempted to edge closer to his colleagues, but the guards were wary and pushed him back. Their audience completed, the four scientists were conducted to a building housing a completely equipped laboratory Here, they were told, they were to work, eat and sleep.

When they were alone, the colleagues recounted their experiences. Each of them had been brought to the city of Duurkbar in a separate amphibian vessel and each had been unaware of the presence of the others until that moment in the royal chamber when the trick theatricals of Suun Yaar revealed them. They agreed that there was nothing to do but to begin work on the parthenogenesis of Black soldiers.

"There is one hope: The men whom we create might be trained to obey our commands." But even as he voiced this thought, Dr. DuPrey's tones carried but little conviction.

In the days that followed they found but little hope. No word of the outside world came to their ears. What had been the fate of white civilization they could only ponder upon during their frequent discussions which came as a welcome relief after hours of toil. They were not permitted to leave their building; everything was brought to them, food, tobacco, liquor, everything but open air and freedom. From their windows they gazed out upon the far reaches of the African landscape, saw the Blacks going about their business in the noonday tropical sun, while within their air-conditioned rooms it was cool and comfortable.

Six months passed. By now, Gray pondered, A-100 would be a tall, strong youth of twenty, and the other Chromosomians, too, would be ready to take their places in the depleted ranks of the Americans. Somehow, he could not convince himself that the Whites had been conquered. Many gigantic amphibians lifted their huge bulks into the hot African sky from time to time, and it seemed to him that not quite as many returned. Then too, judging by the commands of Suun Yaar, urging greater speed in creating soldiers, he was getting worried over the state of affairs.

"We'll speed up the rate of growth for him," DuPrey boomed, "We'll speed it up so darn fast that his ugly blacks will die from old age before they have had time to pass through their teens."

"That's an idea, Doctor," Sinclair enthused, "Why not?"

ACCORDINGLY, they set about to outwit Suun Yaar. Whereas the life span of the people they had created in their laboratory in America would be about two and a half years, the Black Chromosomians would reach the physical age of sixty-five in less than six months. Lose their youthful vigor in the course of one battle!

"Have you noticed how the inhabitants of this city seem to be thinning out, even with the thousands of new people we are turning out?" Gray asked Dr. DuPrey.

"Yes. Look at this chart I have been keeping. This curve represents the number of people who have passed outside of this window during the past six months. If the ratio of decrease shown here is representative of the entire population of the city I would say that ninety percent of all men of military age have been withdrawn. Why, there are hardly enough left to protect the place

against a surprise attack by even a small force."

Perhaps it was a premonition on the part of the four scientists, perhaps the result of logical deduction, but they were expecting something revolutionary to happen at almost any moment. But they were hardly prepared for what actually did occur. In the middle of the night the general alarm sounded outside.

At once all lights were extinguished on the streets and within the buildings. A roar as if from thousands of atomic motors rent the air, flashes of fire streaked out of the sky, followed by the dull rumble of disintegrators, the crumbling of huge buildings, and over all the shrieking of men, women and children, mangled and dying.

Gray sprang up from his bed. Already his three colleagues were dressed and trying the doors.

"Locked in," he heard Fairbanks shout.

"Here, put on this mask. There may be gas and bacteria." DuPrey handed out the masks that they had kept ready for just such an eventuality.

"Who is attacking, I wonder?" Gray asked.

"Might be the Europeans—I don't see how our people could have enough man power remaining to launch such a gigantic offensive," DuPrey reasoned.

The four men crouched near the window, expecting at any moment to feel the building rise from its foundation and crush them under a pile of twisted metal plates and girders, or to be felled by poison or flame gases creeping insidiously through the ventilating system.

Somehow they escaped annihilation, although all around them buildings toppled into ruin. Fortunately, their laboratory was on the outskirts of the city while the attack seemed to have been centered on the heart of the metropolis.

NEVER were four men more thankful to see the light of day than when the fiery red, African sun lifted itself over the low lying hills in the east. The horrid din of conflict had ceased. The streets outside were shambles; débris blocked the roads; smouldering bits of combustible material sent up a haze of smoke. Except for bodies that were to be still forever, not a sign of man, woman or child was to be seen.

"Looks more like the ancient ruins of Pompeii that our ancestors dug up than a modern city," commented DuPrey dryly.

"What happened to everybody?" Fairbanks asked of no one in particular. "Perhaps both sides annihilated one another. It would not have been the first time such a thing happened, thanks to the devilishly ingenious weapons of modern warfare."

"Whatever it is, this lull is the time for us to get out of here and make for the airport. Finding an undamaged ship is the only way we'll ever get safely away from this place," Gray remarked practically.

Before they could act upon his suggestion the doors of the laboratory were flung open, and a group of uniformed white men thrust themselves in. They were Americans! And Chromosomians!

"Here they are, Commander," one of them shouted triumphantly.

"Thank God they were uninjured," cried the one addressed as commander. "I feared greatly for their safety." And he pushed his way through his men to greet the four scientists.

Gray looked at the man with dimming eyes. He would have known him anywhere.

"A-100! Is it really you?" He rushed up to the sturdy young man and threw his arms around his shoulders. "Of all

things! This is truly the age of miracles."

The blue-eyed young man found some difficulty in maintaining the composure of a military leader and he hurriedly turned his face away from his men as he drew Gray aside.

"Where is Eileen?" Gray asked, half fearfully, searching the young man's face for an answer he did not want to hear.

A smile wreathed the mouth of A-100. "Safe, at home, nursing the latest litter of Chromosomians."

"What, do you mean the process was continued during our absence?" Gray was astonished.

"I'll say it was. After the first shock of your abduction had left her, Eileen plunged into the work with the will of a thousand scientists. Why, she actually supervised all four creatoriums, flying about in the private stratoplane given her by President Armstrong.

"And you?"

"I managed to tag along and pitch in here and there. But believe me, Hamilton, it was she who did the job. Two million men in six months, Dr. DuPrey," he called to the scientist, "your 'QN' ray forts are still holding. And if you will permit me to say so, they are holding even better than before. We were able to plug up the leak."

"Splendid!" DuPrey complimented, "then it was an offensive war on your part. No wonder those black devils were getting worried."

THE swift flying stratoplanes of the Americans brought the four scientists and the punitive expedition back to their native land. As Gray stepped out of the plane, Eileen, with tears of joy in her eyes, was there to greet him. It was then that he learned how much his protégé, A-100, had really done to save his country and to rescue the captive scientists. It was he who had worked out the answer to making the "QN" ray absolutely impenetrable; it was he who had laid the plans for the most daring expedition, an attack at the heart of the enemy. Before he could undertake such a dangerous task, he personally had mapped the location of the enemy's capital city by flying alone from America, miraculously escaping the dreaded disintegrator rays of the enemy. And it was he who had finally led the victorious air-fleet and defeated for all time the Black forces.

The newspapers and the broadcast visionphones were crying the glory of the twenty-fifth century hero. Plans were under way for a monster celebration in Washington at which President Armstrong was to personally present A-100, Eileen and the four scientists with the highest decoration that the nation had ever conferred upon anyone. At the same time A-100 was to be raised to the rank of commander of the air forces. But there was something disturbing that sobered the joyful populace: their hero, A-100, like all Chromosomians, had but a short life span to live; soon he would be old physically, and, as it must come to all men, death would come to him also. It was a matter of two years at the most.

For several days Eileen and Hamilton hid away from the exacting requirements of fame. They flew out to the now disused laboratory at Shenandoah Crest, and found contentment in each other's company and drank in the peace and beauty of the glorious July days.

"I suppose we should be getting back to the celebration," Eileen sighed.

"A great crowd was there to greet them when they stepped out of their plane. A military guard of honor escorted them, along with A-100, DuPrey, Sinclair and Fairbanks to the steps of the Capitol building.

There were speeches. Medals and citations went to Eileen and the four scientists, who bowed with the modesty of their stations, yet felt the thrill of greatness. Then President Armstrong rose and walked over to the tall blue-eyed youth who sat with parched lips, waiting for an ordeal that was to be more difficult to pass through than a thousand air-battles.

As the president began his speech, he was suddenly embarrassed.

"A-100—that name seems so impersonal. Will you permit us to confer upon you a name more like those of your good friends?" he looked with beseeching eyes into the face of the young man.

A-100 shot a startled glance at Eileen. Then getting an encouraging nod, he replied to President Armstrong:

"Thank you, sir. But I already have a name."

"What?" the President was clearly surprised, "You mean a name you have selected for yourself?" he asked.

"No, my real name. It is Gray—Denis Gray—son of Eileen and Hamilton Gray!"

The President and the dignitaries could only stare, speechless with amazement.

Eileen smiled through her tears as she affectionately put her arms around her boy.

"Yes, Mr. President, Hamilton and I were married in our early laboratory days. Denis was born to me here in Washington. Then we decided that for our country's sake we would place him in an incubator to accelerate his growth, along with the thousands of Chromosomians that we had created."

The mist welled into her eyes and she turned to look far out over the heads of the crowd who, sensing the drama that was taking place on the Capitol steps, were strangely silent. Then she said:

"Even though he will grow old all too soon—and we shall have him for but a few short years, it was worth it." Then bravely wiping her cheeks she linked her arm into that of her son and walked over to Hamilton who stood solemnly waiting.

"We will ask Dr. DuPrey to help accelerate our lives too, Hamilton, so that we may grow old together—just we three."

THE END

IN THE JANUARY ISSUE

THE WORLD AFLAME

By ISAAC R. NATHANSON

This author has won great favor with our readers and we feel that he has deserved all of it. In this story he will be found to live up to his reputation.

AN EPOS OF POSI & NEGA

By JOE W. SKIDMORE

The boastful and opinionated Posi has a further series of adventures with the retiring, yet very charming, Nega.

THE INNER DOMAIN

By PHIL COLLAS

We believe this is the first story by an Australian author which we have received and it will undoubtedly be appreciated by our readers.

Land of Twilight

By ROBERT PAGE PRESTON

Part II

Our author, in this installment of the story, maintains the full interest which attracted our readers in the beginning. David and Diana figure in their adventurous career, exhibiting the virtues of loyalty and courage. The "Land of Twilight" will hold the reader's interest to the end, and this is the one great thing to be said about fiction, if it only merits it.

What Has Gone Before:

In the year 2004, David Garfield left the earth on a journey to the moon in one of the new "Transatel" ships. "Tiny" Bill Hughes, so called because of his six feet four inches of height, was discovered as a stowaway half an hour after the ship left the earth.

After an adventurous journey, David and Bill leave the moon and go on to Mercury. Anxious to explore the near-by terrain, they enter a little valley and discover a band of strange beings, whose short, heavy bodies are covered with a sparse growth of hair mottled with the color scheme of their surroundings. In their midst is the slim figure of a girl, taller than the rest, held by a cord around her neck. She seemed of an entirely different race, as she looked much as our earth people do. For a second the attention of the man holding the cord was diverted and like a flash the girl was away. The creatures did not follow, but seemed to lay the blame to Bill and David, for they started in their direction, taking them both captive. During the skirmish David is hit by a stone from a sling and knocked unconscious. When he comes to, he is being carried by a band of the creatures to some destination unknown to him. During one of the periods allowed for sleep, David is awakened by the girl who had previously escaped and they both get away to safety. Diana, as David calls her, tells him that Bill has been taken prisoner by another band of the creatures, called the Dars, and that she is of the Verean race. Bill, far to the south, is having strange adventures of his own with the Dars, and is on his way to meet Urg, chief of all Dars. Ig, leader of the band which has captured Bill, challenges the great chief, Urg, for the leadership of the tribe and the life of the white man, Bill. An exciting combat ensues, in which Urg is defeated and Ig becomes chief.

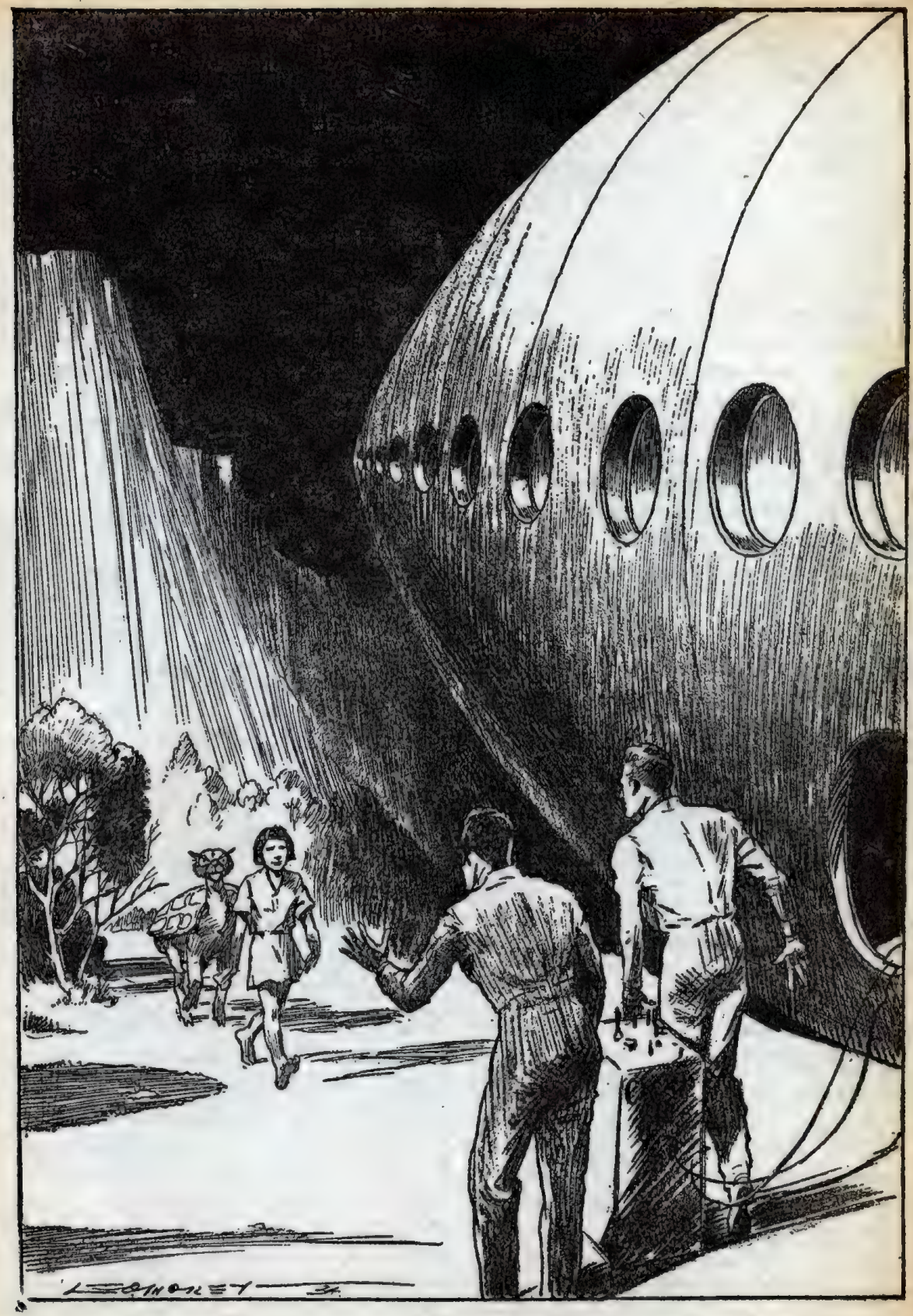
CHAPTER VIII

Thuruli

DIANA and I continued our way westward. When I had a sufficient command of the language to make my thoughts clear, I asked of her, "Why is it that you do not seem to fear pursuit?"

"We travel at a much faster pace than the wild men. They know once a Verean gets free, that they can never catch him, and, in addition to this they have only one purpose in mind at any one time. That purpose was to take me to their leader, as many of the women of my race have been taken before; when I escaped and you and the other man got into their hands they must report for orders. Now they are further baffled and will head to the land of darkness in all haste."

I noticed the peculiar pendant that was suspended about her neck and asked her what it was, since it was the only ornament that she wore. She replied that it contained a native poison with which the women of the Sen Ver kill themselves when they fall into enemy hands. As she continued to wear it, I concluded that she



When close enough I spoke to the Verean boy and sheepishly he came from the clump of small trees, the beast following.

was not too trustful of any men but those of her own race. I could not blame her in this.

"Do you know what became of the giant man that was with me?" I asked the question that had been uppermost in my mind for many days. I almost dreaded to hear her reply.

"When you had fallen, he turned to aid you and was hit by a stone, as were you. Then when they had tied you both a larger band took him into the land of darkness by another trail that leads south. Somewhere to the south you may be able to find him with the serpent that flies."

The agile mind of Diana had pictured the Transatel ship as a huge serpent, differing only in shape and size from those of the great morasses. Soon we reached the ship and here for the first time did she show any sign of fear. I was to learn later what a terrible scourge the great reptiles are to her nation.

"You go on alone, Sen Eil," she begged me. "I can hide among the rocks and caves until you return. I can live easily, and the wild men cannot catch me if they do come back." She had great fear of this thing which looked so harmless to me.

"It is impossible to do it that way," I said. "You must go with me, even though I must use force to get you inside the ship." I wondered how I was going to accomplish this, as she still wore the pendant with its deadly poison. At last I convinced her that the ship was only a machine, made by human hands like my own and she consented to enter. To her it had been a super-monster seeking prey. Though I were its master she did not wish to go near it.

When we finally entered the ship I found that we were still in a bad predicament. The convertors to the transmutor had been opened and none of our meager supply of element eighty-two was left. Our machine made use of the conversion of element eighty-two to element eighty. Fortunately the transmutor is so designed that when the fuel intake valves are opened the safety exhaust ports automatically open and must be closed manually before the ship will take to the air. With our safety ports open our fuel had nearly become exhausted in the weeks that we had been away.

It seemed that we were marooned until I thought of the lead chemical containers in the ship. They were in the top cabin, for were any lead in close proximity to the converting catalyst, is would come under the influence of the action of the compound.

While traveling upward through the ship we could see the cause of the mishap. The entire ship had been ransacked but nothing of value had been taken. It was fortunate that they had not found the lever that controlled the power safety ports or we would have been without a ship. I wondered what would have been the sensation of the marauders if they had found themselves rising into space.

We found our lead, little enough it was, but probably enough to furnish fuel for about 10,000 miles. I might travel over the inland section of Mercury many times before I found Bill, for, since I now believed that he lived, I would exhaust every method within my power to find him. On earth fifteen dollars would purchase enough lead to power the ship to run continuously for nearly a year but in my travels here I had seen none of the lead-bearing ores, nor would I have been able to free the metal on short notice, should I come upon its compounds.

I had seen gold and silver, pits of native quicksilver, vast quantities of pure copper, iron and many metal-bearing ores but I had not remembered sighting any of the one element I desired most. Much of the surface of Mercury, especially the high ranges, consists of valu-

able minerals but no ores of lead.

I decided to search in a few of the near-by caverns before going on to look for my partner. I was not satisfied with the amount or the quality of the stuff that we had salvaged from the interior of the ship. It was possible that there was some in the vicinity. Accordingly the next day (although there is no period of light or darkness here, as we know them on earth, I will refer to night and day since I have never been able to get entirely used to the complicated system of "sleeps" and "works" that the Vereans use. It is simpler for me to think of the time that I am awake as day, to the rest as night,) we set out, with weapons and a food supply, to the caves in the vicinity.

I SUPPOSE that I grew careless, becoming absorbed in the material that I was finding. I set my weapons against the walls of the cave, to examine more closely the strange metallic combinations that were here. I was brought to my senses, abruptly, by a savage snarl close to me! Ahead of me I saw the glow of flashing eyes. I backed cautiously toward my weapons but before I could reach them the great cat leaped! In the split second that its body was in the air I heard the faint sound of a Transatel weapon in action, then I was bowled over by the weight of the animal. My head hit the walls of the cave and I felt myself slipping into oblivion.

"David, my David." I heard the words faintly through the mists of semi-consciousness, "do not take him away from me, O mighty Thurl." For the first time Diana was using my given name. Secretly I had a very great respect indeed for this brave and practical woman, but she had never before, by any word or sign, shown any interest in me, other than that we were two humans in danger and that we must work in unison in order to survive. I was glad to learn that she considered me as a personality, rather than as a sort of super-machine.

"I thought that you were killed," she said, when I stirred and opened my eyes.

"But for your quick action, I should certainly be dead now," I replied. I looked at the body laying on the floor of the cave. This specimen was more than ten feet long, tailless, the hide covered with long stiff bristles instead of the fine fur of the felines of earth. These heavy bristles serve to protect the animal from the ravages of great insects that abound in some sections of this planet. A blunt wide face and the large eyes of Mercurian mammals, heavy muscled fore-legs were equipped with claws larger than those of a grizzly bear. The hind legs were less powerful, but impressive nevertheless. All in all the creature looked much like an overgrown tiger with some of the characteristics of a pig.

"What do you call the great beast?" I asked.

"Ten Eo," she answered. "That means 'king of beasts' and truly he is that, for so terrible and destructive is he that no animal, save some of the great Troads dare to face him. Even a band of the Sen Lev will give him a wide berth when on the hunt. The magic of the stick that kills is very great."

Except for the shock of the fall and a bad claw wound extending from shoulder to elbow, I was unharmed. However, I felt that I had had adventure enough for one day. We returned to the ship and as soon as the wound on my arm was dressed we took to the air.

"HOW far was it that the barbarians took you?" I questioned Diana.

"It was a twelve day journey from the place that they captured me to the resting place of the ship. Beyond the place of capture it is two days travel to Thuruli, the home of my people. I do not think

that any of the Verean hunters live now, as the wild men always kill all the men and capture all the women of a band."

I could fly this distance quite easily in two hours, so I decided to first fly over the inner valleys to the south in hope that I might locate the trail of the party that had taken Hughes. At low altitude and slow speed we cruised over the valley and beyond the next range of mountains, finding no traces of the camps of the larger party of men.

After some hours of this I realized that I would have to return at a later date fully prepared to spend a long time in the search. I swung the ship in the direction that my companion gave to me and soon we made a landing on the top of a high, flat-topped mountain that reared its height from the center of a large fertile valley. We moored the ship and started on foot across the rough boulder-strewn surface.

We had proceeded but a short distance when we heard a sharp command in Verean ordering us to halt. My grip tightened on my weapon, Diana, divining my purpose spoke to me in a low voice.

"Friends, guards of the city of Thuruli, which lies underneath us." With hands clasped above her head, in the Mercurian symbol of truce, she advanced toward the point from which the voice had issued, at the same time calling to its owner, whose voice she seemed to recognize. "It is I, Groten," she called, "Tharlan, daughter of your King, and a man from another world."

The guard, Groten, called to others, and voices from all directions took up the call. Into our field of vision came men from all sections of the extensive tableland. When recognition of their princess was complete I thought they would go mad with joy. Questions and answers sped back and forth. Human life is doubly precious, since the Vereans are not great in numbers. The death rate was, at that time, very high, many being killed by the enemies that they must fight.

"WE had given you up as dead," said Groten. "Many searching parties were sent out and one of them found Toren, who had been left as dead by the savages. Before he died he told us of your capture, a long time before that. The parties searching went on, going as far into the dark country as they dared but found no trails that they could follow. The king, Sen Eo, and the queen, your mother, have aged much in the time that you have been away.

"We must go to them at once," she said. "The story, which is a long one, can wait." Sen Eil has a bad wound from a battle with Ten Eo and needs rest and care." She did not tell them of her part in this encounter, or that, but for her quick action, I would have been killed by the lord of the wild.

"A battle with Ten Eo and he lives," said the astonished Groten. "Truly he must be a man of magic."

While they had been talking I had been studying the Verean men. They were invariably of medium height with slim corded limbs and rather small hands and feet. In stature all the fully matured males were taller than I, but none would weigh nearly as much, for though I am very short, according to earthly standards, I am exceedingly heavy. The faces of all showed intelligence and interest. They certainly occupied a much higher plane of evolution than the brutal creatures whose company I had left a short time before. All were dressed in the single conventional garment of the Sen Ver, which is woven of the fibres of some native plant.

We entered an opening in the ground and began a steep descent. The route we followed seemed to circle the inside of the mountain, spiralling to its base. It was pitch dark, which didn't seem to

bother the natives at all, but which rendered me helpless. I turned on a headflash, that first startled and which then amused the band. At length we emerged into what appeared to be a huge amphitheatre, the sides of which were lined with the openings that lead to the homes of the Vereans. At least I thought that this was the case, since the doorways were filled with excited, eager faces. Word of the return of their princess had been carried to the people. We traversed the length of the great square and came finally to a doorway at its farther end. Here the party halted.

"We will enter, Sen Eil," Diana said, but I demurred. In my poor Verean I attempted to explain to her that moments such as these were sacred to those concerned, that I felt it right that I should wait until the first familiar greetings were over.

"I understand, David," she said and was gone.

CHAPTER IX

Monsters of the Sea

APPARENTLY the guards and soldiers around felt that I was royalty or deity, as they seemed hesitant and nervous, now that their princess was gone. I endeavored to put them at ease for I wished no homage shown to me and because I really desired to be friends with them. So I addressed Groten directly and to the point.

"I am only a man from another world," I told him. "Everything here is as strange to me as it would be to you on my earth. While we wait would you tell me something of the race of the Sen Ver.

"Ages ago," he answered, "the Vereans lived in the forests and caves of the inner lands, as do the Sen Lev to-day, wandering where the fruit and game were most plentiful, always hunted by the Sen Lev and by the greater beasts of the forest, as we are weaker physically than the Sen Lev. Then the first Sen-Eo, (literally this word would be translated, Man First, or Leader) found this valley with the great mountain in its center that could be defended. Caves and passageways were plentiful and many of the wild fruits that we eat grew in the valley. He conceived the idea of staying here permanently, ceasing to roam over the land, as we had done before. Amongst these early ancestors fire had become known as also had the method of drying and saving the meat from the kill. He realized that the onslaughts of wild men and beasts had so decimated the tribe that, as time went on, it faced annihilation. There were only a few left at the time. Through the ages my people have learned to grow and store the edible wild plants, and parties continually go on the hunt."

"Are there other races similar to yours upon this planet?" I asked.

"We do not know. We dare not venture very far away from our fortifications, because we are so few in number. Even our hunting parties are sometimes wiped out by the wild men, as you know. Only by our fleetness of foot are we able to cultivate the valley below. Warned by signal fires the workers are able to return to the fortifications in case a large band of our enemies are sighted."

At this point Diana returned through the opening to her family quarters. With her were a man and woman whom I thought were the King and Queen of these people. There was nothing in the costume of this man to set him apart from the average Verean, the only ornamentation that he wore was a wide band of some shining metal on his left forearm. The woman was of middle age and was somewhat crippled as she supported her weight upon a stout stick and was assisted also by her daughter. Her features were more delicate than those of

the average Verean, the eyes more expressive, as if from her lot of bodily suffering she had drawn a certain sense of divination and a courage all her own. At the moment those eyes were upon me, searching me, delving to my inmost thoughts, I hoped that the impression that I gave was satisfactory. It was the queen who spoke first.

"Welcome, Sen Eil, who has given back to us the one that the race of Sen Ver cherished most. Only a mother who has lost three sons in battle and from whom another daughter has been taken, can appreciate that which you have done."

WE entered the quarters of the King. The way led through a long corridor, made of a substance very similar to cement. This was colored, in harmonious pattern, by different colors in the material itself. At intervals dim lights cast a subdued light over the whole. The corridor was unfurnished except for long benches that rested against the walls. We entered a large room through a doorway screened by a portière of heavy blue cloth. This room I judged to be the living quarters of the family. A table in the center of the room was set for a meal. I noted that many of the articles upon it were of gold or silver, the dishes were of the same substance of which the walls were built. Some of the gold receptacles were exquisitely hammered. I learned that the all purpose material that they used was named Ekthon.

We enjoyed a hearty meal of native meats, vegetables, fruits and a beverage that was much like tea. Then we retired to another room the outer openings of which overlooked the valley below. The King and Queen were anxious to question me about the far-away land from which I came, I was desirous of learning more about these earnest, friendly people and the world wherein they dwelt, but paramount in my desires was the organization of an expedition to search for my friend, Hughes, whom I now believed to be living.

I asked Sen Eo if he knew anything of the lands beyond the second range and he replied. "Not beyond the second range of mountains, from there one enters the land of greater darkness wherein live great numbers of the Sen Lev. Should a party penetrate as far as that it would not get back alive. It is therefore forbidden to go into the farther valleys of the dark lands. Our losses have always been heavy, but gradually we gain in numbers.

"In my father's time there lived a man who conceived the idea of mixing sands with water that dries leaving the smooth walls of our buildings. He also first fashioned dishes of the same material. He built the image of the great Thurl that stands in the passageways as a guide to all Vereans. Unfortunately this man was killed in an attack of monsters of the sea. Who can say to what ends his creative ability may have led us, had he lived? The ideas that he gave us have been put to use and even improved upon. It has been our fate that invariably our leaders are wiped out by club or claw."

"The medium of men's thought's is the written word," I exclaimed, "for then the creative ability of the man lives on after he has returned to the soil from whence he came."

"The written word?" he asked me.

I DID not know that his people had never devised a method of making characters by which to transfer their thoughts. To make my meaning clear, with his permission, I drew a sketch of the king of beasts on the smooth wall. Since having no written language it followed that the Vereans would not have paper.

"Of what is this the likeness?" I asked.

"Ten Eo" was his quick reply.

I sketched a Verean warrior and a Verean maiden and he named them. Then I explained that were these to be hewn in the face of a rock they would remain there for centuries for all to see. Thus, in the beginning, had the men of my own race learned to record the happenings of the present for use in the future. The Verean mind, I found, was eager to learn and very quick to grasp new ideas, their greatest handicap having been, in the past, that so arduous was the task of existence that they did not have the time to devote their attention to learning. Now this leader, anxious for the welfare of his people, and I, labored for many hours devising characters in phonetic English to cover the Verean tongue. We made these at first with native dye on tablets of Ekthon. Since that time English has been substituted, as it covers the needs of their advancing civilization more fully.

In Diana and the Queen we found two apt and enthusiastic pupils. Soon we were able to turn over to them much of the task of starting an educational system. In particular the Queen was very much pleased to have this duty. She had been hopelesly crippled for many years, the knowledge, that she could help others in this way, seemed to give her great pleasure.

Sen Eo and myself then turned our attention to the training of the men and such of the younger women as were fitted, in the art of warfare. At that time the offensive weapons of the Vereans consisted of short spears, swords and knives. The weapons were made of a copper alloy that could be tempered to a fair degree of hardness. Fair enough weapons for close combat but useless otherwise. Hand to hand conflicts were just the things that they were least fitted for, as their hereditary enemies, the Sen Lev, always outnumber them and are physically much stronger. It was impossible for me to make firearms of any sort, but we could make bows and arrows. It seemed strange indeed that no Verean had ever thought of that great offensive weapon, the bow and arrow. The Tarrell tree made excellent material, much superior to any wood that grew upon earth, for this purpose. We soon had an army of archers in training. Under the conditions that exist on the surface of Mercury we found that we could make big cross-bows that would hurl an arrow three-fourths of a mile. The long bow did not have such range but was much more rapid and had a greater range than the Sen Lev could hurl a stone.

During all this time I made many trips into the surrounding country in search of lead ores. Returning from one of these unsuccessful expeditions discouraged, I turned in to sleep. I was awakened some time later by Groten shaking me.

"COME," he said, "the monsters from the sea are migrating and are near the valley."

We had been expecting this attack, which occurs more or less regularly at the times that the monstrous amphibians leave the sea, seeking the higher ground in which to lay their eggs. On the path that they take inland every living thing that stays in the way of the migration is destroyed as if by giant locusts.

With my picked crew I sped to the ship on the mountain top. Quickly we cast off her lines and rose into the air. The King and Groten would lead the attack on the ground.

Some miles away, at the mouth of the valley, we came upon the vanguard of the masses. An awesome spectacle they

made. As far as the searchlights could reach the ground was covered by the mass of slow moving reptiles—a tide of devastation, stripping all vegetation as they advanced. Unless checked, they would leave a trail of ruin in their wake!

Hovering close to the mass we opened fire on them with all of our guns. Countless numbers of them were slaughtered by the rapid fire but still the mass came on and on, unchecked as yet. By this time the attack on the ground had gotten under way from the sides of the valley. In the half-light we could see the huge fireballs, made of a pitchy resinous wood, being rolled down the slopes into the crowded mass below. The night was made hideous by the screams of the burned and wounded reptiles, as those that fell were devoured by others in their passing. The countless thousands that came on from behind would not allow those in front to stop.

I was interrupted at my work at the forward gun by Mu-kan, youngest member of my crew, "What do you want here?" I asked rather abruptly, as he should not have left his station without orders.

"I know that I should not have left my post, Sen Eil," he answered, "but I could see that it is the light that the creatures fear rather than the bullets!"

I looked through an aperture and could see that this was indeed so, at the spot where the lights fell upon the ground, the reptiles were held in a sort of hypnotic spell and so they would not cross the patch of brilliance. I called a halt in the firing and gathered the men below to tell them of a change of plan. My speech was brief.

"MU has informed me that it is the light that stops the monsters rather than the harm done by our guns. I am going to the ground with a 'chute." As I was speaking I dragged an automatic 'chute from the racks.

"There is no one here that can properly operate the ship," Mu reminded me. "I can go below with your message. I have heard you say that the 'chutes open themselves."

I considered, for while the 'chutes are automatic working on a timing device, still in common with all things made by human hands, they may fail. This would be Mu's first attempt at leaving a ship. If the automatic device didn't work, would he know enough to pull the pin. I was persuaded more because all the crew, to a man, were determined that any one should make the descent except me.

I gave Mu careful instructions for the ground forces and had him repeat them to me. "If the 'chute fails to open when you have counted to four, pull this pin."

"Yes, sir, but I know that it will not fail!" He smiled and stepped to the outer deck.

"May Thurl guide you," I shouted as he left the ship. In the light of our searchlights I saw his body turn over once as he dropped, I held my breath; the umbrella opened, and his flight was checked. We saw him floating down to the mountainside below. Hardly more than a child, he had the supreme courage that enabled him to rise to emergencies with an abandon of self that seems outstanding in many of his race.

"See, Sen Eil, he has landed safely," one of the men shouted, "and now they are going to light the fires." A cheer arose in the group of men clustered around me. I had sometimes thought that these were men that had become indifferent to the sight of violent death. I was learning that this seeming callousness was only a veil that hid the true feelings beneath.

We maneuvered the ship into a position at the edge of the wide valley coming down to a position directly over the mass, bringing all the powerful lights to play on a single short section of the ground. A stretch of about two hundred yards was brilliantly lighted. Mu had been right. None of the reptiles would come into this section of light, fighting their way backward. In the lighted section below Groten and his men were working in feverish haste. From the sides of the valley they were bringing great loads of the pitchy 'Lenter' wood, that burns with almost explosive violence. This was piled high among the bodies of dead Saurians forming an immense funeral pyre. We then moved the ship and the lights to a new position and the same move was repeated. Soon a wall of fire, agent of destruction against which nothing that lives can stand, stretched across the valley.

Slowly but surely the great mass ceased to move, finally swinging away to a new course to find another place through which they could gain access to the higher ground. We neither knew nor cared where they went. The crops of the entire nation that were in the valley had been saved, the homes in the mountain would not be molested by the savage, foul smelling things. The spectre of starvation and privation would not have to be faced for the next few months.

We were by no means done yet. Dead and wounded must be cared for, and the fire, once our ally, must be checked before it became an enemy more terrible than the one we had just overcome.

We came down to the floor of the valley and set about the work of mopping up. A few of the Vereans had been killed or maimed by the reptiles, a great many suffered severely from burns inflicted by handling the fireballs.

IN the ghostly glare of the burning pyre I came upon Diana. She was badly wounded, the flesh of one leg torn and lacerated by a blow from the tail of one of the saurians; she was carrying on by nerve alone, endeavoring to minister to those more badly hurt than she was. She would not listen to the entreaties of her father or any of the others, refusing to leave the field.

I am not particularly well versed in the science of medicine, but I knew enough of it to see that soon she would die from loss of blood. Now was no time to bandy words with her on a misguided sense of duty, all argument seemed to be useless anyway. I addressed her father. "Hold her hands, Sire."

I made and applied a rough tourniquet from a length of liana that one of the men brought to me, and we found it necessary to bind the hands of the woman, who was now hysterical and fighting me. "Perhaps you will hate me for crossing you, my dear one," I said to her, "but this is for your own good. There are many others to tend the wounded, there is only one Diana. I am taking you back to the ship where proper care can be given to you."

Her struggles and the loss of blood had greatly weakened her, but as I lifted her to my shoulder I heard her say, "I could never hate you, David."

On the way to the ship she lapsed into a coma. Arrived there I found that the spark of life was ebbing, the pulse was only a flutter. Even with my scant knowledge of surgery I knew that there was only one way to save this life now grown so precious to me. I called my crew of Vereans and told them the act that must be performed. They have no knowledge of medicine

other than the use of herbs and the rough treatment of wounds. None were better fitted than I to attempt the blood transfusion that must be made. It was a tribute to their courage and to the faith that they had in me, that every one present was desirous of being the one to give his blood for the operation. I selected the donor quickly and got to work.

I would rather not dwell upon this, my first and last attempt at surgery. My expert knowledge of first aid doubtless stood me in good stead, but at best I must have made a very amateurish job of it. However, necessity can make us do many things that we would never find the courage to attempt otherwise.

WHEN I had finished the work I felt that I must be alone. I walked many miles by myself in the half-light, torn by emotions new to me. All my life I had considered myself immune to the call of the weaker sex, in a serious manner. Women, many of them, I had known and liked, but none had ever succeeded in enticing me away from my studies, experiments and the glory of the heavens seen at dawn. Here, millions of miles away from my own land, even unable to know that I would ever see my own kind again, I knew that for me there would never be but one woman, this courageous girl of a different, though strikingly similar race. I did not know whether she would return my love or not, nor could I tell if her people, though they undoubtedly showed absolute faith in my superior technical knowledge, would tolerate a strange being in so intimate a capacity. I was certain, however, that for me, through all to-morrows, I would love this one and only her.

At intervals in my wandering, I had looked in upon my patients. To my delight I found that they were coming on very well. The man who had given his blood was already anxious to be up and away. I found that we could now move the ship to her station on the top of the mountain. Gentle hands lifted the girl and carried her to her home. I went underground alone. On the way my head flash exhausted itself, but I was unconscious of the fact till I bumped into Groten, the fearless one. "Guide me with your eyes, Groten, for I am indeed blind."

I learned from him that Verean women at the age of sixteen may become mated. The decision of the maiden, and her mother, is in all cases final, except in the case of a daughter of the leader, where the voice of the council must be heeded. A very good system, it squares the forever bothersome triangle.

We arrived at the regal quarters, that were in no way different from those of the other Vereans, and I entered. My first duty was to see how Diana was getting along. I found, to my surprise, that she was coming along very nicely, her marvelous vitality would pull her through. The heart action had returned to normal and she was resting naturally.

The King had not yet returned from his work at the end of the valley, probably he would not be finished there for many hours. But Vanda, the Queen, stopped me and asked me to talk with her for a while.

"ONCE again you have saved a mother's heart from great anguish," she told me. "The guiding spirit must have sent you to us to help us in our struggles. Anything that is within our power we will gladly do for you."

"Some day I may ask you to fulfill that promise, to do so now would be unfair."

"I should tell you why the life of this one girl is so valuable to the race of Sen Ver. Since time began the leaders

of the Sen Ver have been in a direct line. In a very few cases, no son has survived the King, when such has been the case the mate of the eldest daughter takes the regal name and becomes the ruler, but never has a child failed to live to take over the rule of the people. There has never been a new line. When Tharlan, Diana as you call her, was a very small child, we were subjected to the worst attack by the sea-monsters that we have ever known. For days they swarmed over the valley and ruined our crops. They entered into the passageways in the mountain and spoiled our homes. During that migration, three sons and an older daughter were killed by the beasts. I was wounded, crippled as you see me now. Somehow I managed to crawl into a narrow niche in a wall with my youngest. There I lay for days, with my child, both of us just alive. Eventually the migration passed and we collected again. I was unable to bear any more children, for years I could only move my arms. The Vereans mate until death. Many times I have been tempted to do away with myself, but I do not think that Sen Eo would mate again and so it would not serve any purpose. You can see that a great deal depends on the life of one girl, outside of the fact that it would bring sorrow to us, her parents, it would be a serious blow to the morale of the people, should anything happen to take the life of Tharlan. I wished to tell you this, to express, in some measure, the gratitude of the whole nation."

"We got over that hurdle safely," I said. "The others will not be as high." To get the conversation into a more happy vein, I told her of my boyhood upon the shores of Hudson Bay, of the long, cold winters, of the ice and snow, which is never seen upon Mercury in the natural state. I spoke of my early ambitions to travel into space beyond the confines of the earth's atmosphere, into regions unexplored. I mentioned the great cities of earth with their tiered highways and their vast landing stages. I visualized the great telescopes that were in use, with which man studied the heavens. In the section of Mercury that the Vereans inhabit the stars are not seen, farther inland they are in continual evidence.

"I would love to see and study them," she told me. "I have heard much of these lights of the sky from those of our people that have returned alive from expeditions into the dark country."

"Some time, when we can do so, we will make a flight into the dark lands and you may study the stars through the one telescope that we have. I will show you, among the others, that one in the heavens that is my earth."

At this point our conversation drifted to the metals of Mercury and those of earth. I spoke of radium, that element that gives forth light in the darkness.

"WE have the metal that shines in the dark!" the Queen exclaimed. "From one of the many hunting trips, a man by the name of Tern returned to tell us that he had seen great pits of the glowing metal in a cave within a mountain. He spoke of it as throwing off a ghastly greenish light, as if it were about to move and devour the beholder. We all laughed at him, telling him that he had become frightened at the eyes of Ten Eo. I shall have him come to you. If he can remember the location of that cave you may see it yourself. It is almost time for another day's work. I have been selfish to keep you from your rest."

I looked at the Verean equivalent of a timepiece and found it to be true that we had talked through nearly all of the period set aside for sleep. I learned that Diana was peacefully sleeping and, leaving word that I should be wakened in case of necessity, I retired to my chamber in the mountain side to get a much

needed rest. I was more hopeful than I had been for weeks.

Fuel for the Transatel ship had practically been exhausted but I felt that, if I could find the radium, I would have a supply of fuel and would be able to continue the search for Bill. I slept till the next "day" had started and awakened to find that the man Tern was waiting for me.

"Tell me in your own way just what the metal looks like and where you found it," I asked, for I did not want to waste my small remaining supply if his information did not appear satisfactory.

"It was a long time ago," he answered, "and I have not spoken of it for a very long time, because all of my fellows point at me and laugh. I believe that I can take you to the place with no trouble. It is easy to find since it is near the Great Pit and in a cave in a lone mountain. I had cast my spear at a large unthar. My aim was poor and my weapon entered the hindquarters instead of directly behind the foreshoulders as I had intended. The big creature was bleeding badly and as they are prized food I followed it away from the main party. It grew weaker and finally entered this particular cavern. I followed, intent only on the trail. Not until the creature had evaded me in one of the side fissures did I notice that inside the cavern the light hurt my eyes. I could hardly look at the source of the light, it was so strong. Then fear overtook me. The storm I can understand, when Thurl, maker of all, is displeased with his subjects he hurls his mighty voice from above, lashes the mountains with his whip of lightning, and washes all away in the bursts of rain. This giant in the inner earth seemed different, more terrible, as if he were lying in ambush, slowly blinking his evil eyes and waiting to reach out and seize any unfortunate creature who passed that way. I took to my heels, never have I run so fast. My footsteps must have been guided by Thurl for I knew not where I ran until I was outside the cave!"

No other substance that I knew would create such an effect.

That same day I departed with Tern and my crew for the lone mountain near the Great Pit. A few hours run brought us to the Great Pit. I flew low over this. It would take a man on foot more than a day to travel around it. There are many of these pits on Mercury, as if in ages past huge meteorites had come hurtling through space to bury themselves far beneath the surface of the land. We have not, as yet, explored these holes in the ground. We soon sighted the lone mountain, of which Tern had spoken, and landed at its base.

As soon as we were well inside that cavern which Tern had once before entered, I could see that he had not exaggerated in his story. Walls, floor and roof gave back an eerie glow. The source of light was twin pits of boiling, bubbling metal, that seemed to advance and recede, like a devil's cauldron. In spite of my training, I think that I would have run away from the place myself, had not my desire for the element been so great.

"No man may doubt your word now, Tern," I said. "The Ten Eo never lived who had eyes that glowed with such fire as comes from yonder point!"

We went to work. It was hard and dangerous labor to get the stuff out of the pits and into the ship outside, but in a few hours we had taken enough to satisfy my needs and were on the return.

There was a completely equipped physical and chemical laboratory aboard the Transatel ship.

THE Radioactive Elements are easily converted by means of a recently discovered activator, elements of the other families are not as easy to change. I

worked much of the time in the next few days in changing the radium that we had collected, through its six succeeding stages, into its end product; the lead that I desired. It was a satisfaction to know that I had at last found a source of fuel.

"My preparations are nearly done," I reported to Sen Eo. "I do not wish to run away from your hospitality, but somewhere out in the land of darkness I feel sure that my friend still lives. I must go to help him if it is humanly possible to do so. I do not believe that the barbarians, debased as they are, have put him to death. Over there, in the land of the stars, I feel sure that he is waiting, hoping that I will find the chance to free him."

"Our first duty is to our friends," answered the King. "Pick your crew from the men of Sen Ver, since it is probable that you will need help to find your friend. Any Verean will gladly go with you, we feel that we owe you a very great debt. We have nothing to fear from the amphibians for a long time; the archers will be able to take care of any attack by the Sen Lev. I have faith that you will return to us, that we may continue this friendship."

I was at a loss to find words that would adequately express my feeling of thanks to this man for his very generous offer. I chose Groten, a natural leader and a fearless man, and the crew that had been the regular crew of the ship. Twenty men in all against the hosts of the inner lands, but we had the advantage of modern, efficient weapons which would make us the conquerors.

CHAPTER X

A Verean Offensive

RISING to a low altitude, we flew at surface speed into the east, our first objective the place from which Bill and I had our first disastrous meeting with the men from the inner lands. I placed Vereans at all look-out stations, as, in the very poor light that prevails here, their vision is much superior to my own. I handled the controls of the ship. The trail of the band that had captured my friend was old and indistinct. I had little choice but to take to the air, to cruise over the whole section, till I should find sign of the barbarians. My course upon sighting them I left to the future, it would depend upon the conditions that arose at that time. We cruised in an ever-widening semi-circle, at such speed that the ship hardly moved upon a forward course.

After about forty hours in the air, I was forced to land. My crew were suffering from an attack of air-sickness. I had not taken this into consideration; having spent a great deal of the time in the last few years in the air it did not bother me. The Vereans were not hardened to the continual motion of the ship in the air and I must accustom them more slowly. I chafed at the delay but there was nothing else to do but to land and spend considerable time on the surface.

When we came to the surface I was glad that I had been forced to halt, for there we found the first signs of a large party of our enemy. Near our place of landing we found signs of a large band. We found the remains of a large camp-fire. This was not such a fire as would have been started by lightning, but was a great camp fire built by the hands of men. All around us were the bones of creatures that had been eaten. I sensed that Bill had made more headway with the men that had taken him, than I had with the party that had captured me. They had refused to have anything to do with me only untying my hands that I might eat. He had apparently made enough progress to convert them to the use of cooked food, because I knew

that they did not know the value of flame, previously. Some of the older trailers among the Vereans informed me that the party had passed this spot about a month previous. By the indication left they were traveling straight inland to a mountain pass that I could not see, but which was easily seen by the Vereans.

"Whenever we are on the ground we will keep guards out," I told them, since there may be other bands in the vicinity. One man and myself will stay with the ship. If any of the barbarians are sighted, use the signal pistols, and return to the ship at once. We will fight them from the vicinity of the ship or from the air if necessary. Do not, under any circumstances, let them get in close range, as they are deadly with stones. We will sleep for a short time, as none of you have had much rest since we left Thurli. So, with the tireless Groten and myself keeping watch, they lay down to catch a few hours rest.

It was remarkable to me to see how unconcerned these men were in the face of unknown circumstances, perhaps of danger. Once the council had been held and the plan made, they lay aside all worries and were soon in slumber, even including Mu, a youth of not more than fifteen years. After a meal, they slipped away into the forest, to form a double circle of guards about the ship. Generations of watchfulness have taught them the value of peace and silence, since nearly all trouble is, directly or indirectly, the aftermath of too much talk. They seldom quarrel among themselves, they know it will be necessary to spend much of their time, under any circumstances, in fighting, and they do not waste time by fighting each other. They have truly learned the value of unity. The civilized men of earth, with all his background of knowledge, with every advantage of ease of life, has not yet learned this fact. In many ways I could teach these people, but I have learned many things of value from their philosophy of life.

Each of the men were equipped with a small rifle and a signal pistol. The man that remained and I went to the observation cabin of the ship.

WE were in the highlands, where beasts are fewer yet we could see and hear life in abundance all around us.

My companion, Salthen, grew tense. "Eo, Seg, Thun," he counted "far to the east I see the flashes, Sen Eil."

I could not see to that great distance, but told him to go to the other side of the ship and give the signal to return, while I did the same from the side that we were then on. We flashed the signal to come in, and received the answering flashes from the darkness. The guards from the west arrived first, reported and went on through to meet their comrades. We cut all lights in the ship as we did not wish to give away its position to our enemy, for enemy it must be, that the guard far to the east had sighted. When Sen Lev and Sen Ver meet there is never any parley, but quick and deadly action. Hatred and jealousy spur the one, the very hope of existence activates the other.

Occasionally we could hear the scream of a beast as it fell before the guns of our guards moving eastward. For the most part the forest was silent. It seemed that the creatures of the wild, sensing events beyond their powers of understanding, slunk away to their lairs, to wait until the hated man-beasts had fought and gone.

The signal pistols flashed briefly as the whole party returned to the ship. We called a council and Groten, for it was he that had come upon them, told us of the band of savages that he had seen.

"There are about three hundred of

them in this band, "Groten reported. "I went close enough to them to hear some of their conversation, which I understand. From high up in the mountains they saw our lights, and are coming to investigate. A large band, such as this is, will attack anything. Four Yurgs (a Verean unit of length, slightly more than one-half mile) from here, there is a narrow pass, through which their path leads. We can attack them there from all points."

"Can they see the ship now, if we take to the air?" I inquired.

"The Sen Lev are slow of foot and are still many yurgs away," Groten told me. "I do not believe that they can see the ship itself, if all her lights are out, nor do I think that they know that they were spied upon."

"I will take the two men that have been hurt, aloft. Groten will lead the forces that fight on the ground. Hold your attack till they are all within the pass. Then we will turn on the searchlights from a low level. Do not let any of them escape, but we want some of them alive. It will be twenty men against three hundred, so do not attempt to fight them at close quarters; if the battle goes against you retreat to the valley that lies ten yurgs to the west, from that point we will continue the battle from the air,"

IT would be strategy and ultra-modern weapons against brute strength and ferocity. We rose high into the semi-darkness. Groten and the rest drifted silently away into the forest, toward the pass, where they would ambush the unsuspecting men of the dark country.

"There goes the signal," said one of my men, "the barbarians enter the pass!"

We dropped to a very low level, and I held the ship in readiness over the narrow chasm. Three short flashes came from the other end of the pass, telling us that all of the enemy were well within the ambush. "Now," I shouted, "all searchlights down!" The small valley was flooded with glaring brilliance as the high-powered lights sought every corner. Simultaneously our men at the ends of the pass and scattered along the ridges on both sides, opened fire. Two score of the wild men fell within one moment, they raced towards the western end, to be met by a devastating fire from the Vereans stationed there, they turned and attempted to retrace their path to the other end of the pass only to be slaughtered by the guns from all sides augmented by the fire from the big rifles on board the ship. Some tried to climb the steep walls of the canyon, and were driven back to its floor. It was cruel, yet I could not pity them. The Vereans are a peaceful people who would not use force of arms except when driven to do so. The Sen Lev are all that is the opposite.

The firing below ceased, Groten and his men appeared throughout the pass circling the two barbarians that remained upon their feet. "How will they take them alive?" mused one of my shipmates. We were soon to see.

Groten, with six of the most daring and fleetest came towards them. The two started to run up the steep slope at their backs. We saw Vereans pointing the energy rifles above them, a tree fell in the path of the fleeing men, driving them back to the valley floor as it rolled toward them. Bewildered, they turned to face the ever narrowing circle of silent men. Each gathered a pile of stones. The hunter had become hunted, the aggressor was now pursued. The Vereans dodged ever nearer amid a hail of hard thrown missiles. Groten was now within twenty paces of the pair, boldly he stepped into the open from behind a screening tree. One of the pair

raised his arm to hurl a stone, a pistol came into action, his arm fell to his side useless, as he screamed with pain. It was expert shooting with the small weapon. The other wild man, distracted by the cry of his mate, turned his eyes away from those that were after him, as fibre lassoes settled over the pair. Very swiftly the lines were drawn tight pinioning the arms; soon the viciously fighting pair were rendered helpless with bonds. It was quick, neat action on the part of the Verean warriors in the valley below, considering how powerful and dangerous these Sen Lev are in combat at close quarters.

The ship dropped lightly to the ground and the Vereans, silent, grim-faced, brought their two prisoners to it. I wondered if I could keep them from killing the savages outright; after all I was an outsider, and had no real control over them. Since the beginning of history the Sen Lev had preyed upon the Vereans, killing needlessly all the Vereans who stood against them and carrying off all the women to a sure suicide. I ordered out a detail to see if any wounded lived among the fallen. They did not wish to go, but Groten, quick of mind, sent them on their way.

While they were gone we turned our attention to the wounded in our own party. Two men had been hit by stones, another had lost a hand by the gunfire of his companions. None of the wild men lived except our two captives. Such is the complete destructiveness of modern small arms.

"I WILL question the barbarians," said Groten, "I know the tongue and before I am through you may be sure that they will speak."

Ringed by my crew the survivors appeared nevertheless as untamed as ever. No sound was uttered as Groten, armed only with a short, wicked knife approached the pair. The eyes of the Vereans were as hard as flint. Little mercy could the two expect and well they knew it!

"Come you from the land of darkness?" he asked as he stopped in front of them.

"Raak, weak one," the prisoner snarled the insult by way of reply.

Groten leaped forward, the knife flashed and he leaped back. A welter of blood appeared on the face of the prisoner.

"Listen well to me, man of the darkness," Groten rasped, "do not use your filthy insults now. I have asked you if you came from the council of Urd. If you do not answer me I shall cut off your fingers, one by one, then I shall chop the toes from your feet, slice little strips of flesh from your body; until death will be a pleasure to you, but death shall not come quickly but linger near you for many sleeps."

Never before had I supposed that the usually taciturn Groten could become enraged as I saw him now. This, however, is the only language that the wild men understand, the language of strength —and fear.

"I speak," the savage replied. "We have come from the valley of the Dar. Urd no longer rules the tribes of Dar, but Ig is now chief. With him is a man of another race, a man whom Ig calls Ketang and who knows many strange things."

"You shall guide us to the valley of the Dar," my friend said to the prisoner, "and you shall guide us right or the terrible death, of which I told you, will be yours."

The Vereans were as anxious as I to be on our way, so we all entered the ship and started east, in a direction shown to us by our prisoners. We were soon over the next range of mountains and entering a land where the

light became dimmer with each succeeding mile. Groten and I attempted to question the prisoners, but they were surly and soon were very sick from the motion of the ship. We made many landings to hunt fresh meat and rest the prisoners and the crew.

* * *

CHAPTER XI

Bill Hughes' Story of Star-Lit Lands

IN their homeland, in actual contact with the savage Dar, I, Bill Hughes, found the next few weeks to be the most interesting, and jeopardous of my varied career. To Ig, the chief, I may have been an adviser, to the rest of the tribe, I began to feel that I was a potential meal. Some few may have remembered that I once had a weapon that would kill at a distance, the majority were held in check from killing me only by the fact that they feared the chief more than they desired me as food.

Fortunately this was the season of plenty. Great bands of the Dar were going to hunt and were bringing in the beasts that they killed. This was something new to them as heretofore they had always killed, eaten their fill and left the remainder.

I obtained the necessary mineral ores and with the aid of crude furnaces and much exertion, fashioned knives with which they could dress the creatures that they slew. Further than this I would not go into the line of weapons. If Ig or some of his followers could conceive the idea of moulding the bronze into the form of a spear-head and mounting this on a long stick, well and good. There was a change in my status with Ig, that I did not favor, and I had no intention of arming his hosts more completely than was necessary. I could safely show them how to use the woods that abounded to fashion racks upon which to dry their kill, to build cabins that were much superior to the caves in which they had lived.

My pistol had been taken from me while I slept, this was the reason that kept me from giving these men more knowledge of weapons than they now possessed. I was forced to believe that Ig was the thief, since no other had access to my quarters. I knew that Ig divined that I was playing for time. His shoulder had not yet fully healed of the bad wound he had received in his battle with Urd. I expected that, when he was in fit physical condition, he would expect action on my part and I made my plans accordingly .

In my wanderings in the vicinity I located a small cave that was unoccupied and began to get a store of weapons and dried meats together. I found it necessary to revert to primitive weapons myself. I made a stout bow and a supply of arrows, a short bronze spear, and a long bronze sword. The bow and arrow were unfamiliar to me and I found no chance to practise their use, but the sword was more to my liking. In my college days I had been International College Champion with the saber.

The chief approached me one day and said: "The chiefs of the Dar grow impatient. To the west of the place where we found you lies the stronghold of the Chimi. We will take that stronghold, when you have made us many of the magic sticks. We will kill all of the men and take the shes to mate with us, they are more comely than the shes of the Dar. To-morrow the council meets."

I said nothing, my mind was busy fabricating lies to tell the council and I had the premonition that the lies must be good.

I WAS aroused from my sleep by Ig. "The council has met. Come, the chiefs are waiting for you to make the weapons with which they can overcome the white men of the west." We went forth into the Daran day, or night, as one may call it if they wish. Glittering stars shone down from the heavens. Far away, I could see the point of light that was my own earth. I took a long look at the heavens that I loved, thinking that perhaps this was the last time that I would ever gaze upon their glories.

I had a plan, that by chance might be successful. When we were assembled I spoke, before any of the others should have a chance.

CHAPTER XII

Flight

"CHIEFS of Dar, you have called me here to tell me that I must make for you many of the sticks that kill from afar. I cannot do this unless I have the right stones that are hidden in the ground. I must be alone when I search for this stone, otherwise the Great Spirit, Hiji, will keep it from me. The Great Spirit is my master, I his slave; he would think that others had come to steal his secret. If you wish you may circle the cave wherein I work, with warriors, so that I may not run away. That is all that I have to say, Ig."

I waited for Ig to reply, he did not do so directly, instead he motioned to his chiefs again. He suspected that I knew many things that I was keeping to myself and from his talk, he appeared determined that I should make the guns on the spot. I was indeed in a fix as naturally I could not do any such miracle as that. I crowded to the center of the circle and shouted for attention.

"Listen, men. I cannot do these things quickly nor without the aid of my master. If you kill me now you will never get the Magic Sticks (guns) and Hiji, angry at you for destroying his agent, will send great storms of water sweeping down from the mountains, filling your caves and carrying all that live into the black waters that lie below the rim of the world."

As I spoke, one of the swift and terrific electric storms that occur here came out of the west. My luck was in and I pursued the advantage to its fullest. "Hear and see," I shouted. "Hiji has heard your words and warns you not to destroy that which is his!" As always, when these storms come up, the Dar were terrified, cowering where they stood. The fury of the elements, more terrible than upon earth, puts fear in them. They consented to my terms. When the storm abated, a large band of warriors accompanied me to the west. I headed directly to my secret cave. There was no use in postponing the show-down any more.

"DO not enter," I said when we reached my objective," from here I must go alone. If my master has not the magic in this cavern, he will lead me to the one where it lies." This was the crucial moment. Had I succeeded in arousing their superstitions to the point where they would let me be alone for a few moments? I went into the opening, not looking over my shoulder to see if they were following me, though I was tempted greatly to do this. When I had rounded a turn in the passageway, I glanced backward, I had not been followed. I lost no time in going to my cache in the rear of the cave. It was uncertain work, groping in the dark and I had no head flash or automatic lighter. Behind a screening wall I found a chance to make a small fire, with the aid of flint-like stones and pyrite that I had saved for the pur-

pose. It was necessary for me to have light to make my transformation. Hastily I discarded my clothes, donning the many colored costume that I had made for myself from the skins of beasts that I had killed. I smeared my face with soils of different colors, buckled on my crude sword, sheathed the short spear in a scabbard I had made for it and picked up my bow and the quiver of arrows. I could not see myself, but I could imagine the effect of the ensemble! With the added touch of a knife between my teeth I would have looked like Captain Kidd gone wrong. I am sure that that character never went into battle facing greater odds than those that I must overcome. Had one small pistol been in my possession I would have felt sure of the outcome, as it was, my only hope was to so startle the men outside that I could gain lead sufficient to get me out of danger. A slim chance, but better than passively accepting the death that I was sure would be mine, when they discovered that I was not the magician that I had pretended to be.

I approached the exit to the cave very quietly, risked a quick look to see where the Dar were standing. They were in a group and some distance from the opening. I was sure that they did not expect me to return to quickly. I felt sure that I could out run them and gain the shelter of the hills in the distance. From that point I could make my way to the only accessible pass in the vicinity.

I fitted an arrow to my bow and leaped from the entrance, with a yell that would have done credit to a Pontiac warrior, loosing an arrow at the group as I ran. "There is your magic," I shouted. "I will send you all to Hiji, keeper of evil spirits." I had aimed for Ig, being no archer, I missed him entirely, but noted with satisfaction that the shaft buried itself in the breast of one Korj, a chieftain who was always asking for my assassination. Justice works in subtle ways to balance her books! With a wild scream of pain he fell. As the rest stood, uncertain for the moment, I dodged behind a jutting stone and ran with all my speed towards the hills.

But Ig was not to be so easily outwitted, I heard him bellowing to another group to get into the pass and cut off my avenue of escape. They were much closer than I and I saw that I could not beat them to that point. I would not have much success in fighting them there as there were more than fifty of them, and they would find shelter in the narrow chasm, to capture or kill me. Apparently I had taught Ig too many tricks. He left me but one choice. To climb the steep slopes as far as I could and there to make a final stand, killing as many of the savages as I could before I succumbed to the force of numbers.

Up I went, the sword bothered me greatly but I would not discard it. At close quarters I could do more damage with it than with any other weapon that I had ever used and so I clung to it. Soon I found that I could go no higher! On a narrow shelf of rock with an overhanging ledge I prepared to sell out dearly. What a strange setting! Above me, murky skies, giving back to the land only a faint light. In the distance dim stars that are ever in the sky. Below me the rugged, naked land, with its pattern of gaily colored vegetation—a crazy quilt stretching out as far as the eye could see. A short distance away, darkness and silence. Behind me, the steep slope of rock and naked metal rose to great heights, merging with the somber heavens!

I did not have long to wonder at the odd scene. Below me, a head and shoulders came into view above a rim of

metal. I had plenty of stones on my little plateau and so I used them to save my other weapons. The head and shoulders quickly disappeared. I did not believe that they could advance upon me from directly below, so I turned my energies to building such protection as I could against the avalanche of stone that I knew would come from above.

The voice of Ig came to me from below. "The warriors of Dar attack from above, huge one, you cannot live among the stones that they will send down upon you. Will you give up and return to us?"

"To become a meal for such as Shan or Churg?" I answered. "I would rather die here!"

"Die you shall," came the reply. "Call now upon your Hiji to bring the storm and flood."

For two hours the situation remained thus. Small groups attempted to rush me, with no success. I drove them back with stones and arrows. Then came the onslaught that I had feared. A boulder came hurtling down the mountainside, struck the overhang of my shelter and sped on down the slopes below. How long would the projection over my head hold? Not long, I feared, all they needed were patience and numbers, mother nature had furnished them with ample ammunition! The rain of stones increased, as more of the Sen Lev came to the attack. I could not approach the edge of the cliff to follow the movements of those below, but decided they could not come from directly below amid the hail of missiles rolling down the sides of the hills. In a neat row I placed my arrows, got ready for action with the sword—and waited!

As suddenly as it had begun, the attack from above ceased, but I dared not go near the edge, thinking that perhaps this was a ruse to bring me out of my shelter. Then danger came from the side. Ig and some of his followers had found another way up the slope and were rapidly approaching my little fortress. As fast as I could fit arrow to bow, I sent the shafts among them, but some of them gained the little plateau and found shelter behind boulders upon its surface. Fortunately for me, none had yet succeeded in getting behind me. Whenever a head was raised from behind a rock I sent an arrow on its way. Only three of the Dar remained now, Ig was one of these, and I had but one arrow left! Then began a weird game of tag over the restricted area of the plateau, as I raced back and forth regaining arrows that were scattered here and there over its surface. A wild scream rent the air, far above my head, I was too busy to give heed. Of the three, one was dead, a scarlet feather protruding from his breast, another was wounded but might give trouble and Ig was at close quarters!

* * *

CHAPTER XIII

Groten's Battles in Darkness

MU and I had gone some distance from the ship. I had wished to get some exercise, having been almost constantly in the ship since we had started. "There is a signal from Groten," he said.

I looked in the direction of the ship, far away at the base of the mountain. One of the searchlights was flashing the prearranged signal for all to return. "Groten has seen something that means danger to us, or else the prisoners have escaped," I shouted as we started on the return, "We had better hurry!" As always I had to cut down my speed because of the poor visibility.

The others had all arrived when we reached the ship. "What is it, Groten?" I asked.

"Sen Lev at the top of the mountain,

acting as I have seen no others act. They are rolling huge stones down the other side and I believe at some definite object below. Something is down there that they cannot reach."

Immediately I thought of Bill. I knew that we were nearing the valley that they had used as a camp. For that reason I did not dare to use long range tactics upon them. I gave my orders. Two men to guard the ship and the prisoners. The rest to hurry to the top of the range where the wild men are in action. Do not open the fight till we are right on them, and no noise. Keep together, I will bring up the rear that we may may make better time."

For the second time in the history of their race, the Vereans were launching an offensive against their hereditary enemies. I found it difficult to follow the fast pace that they set, so anxious were they to do battle. We gained our first objective, the base of the last steep pitch there I halted them and gave them final instructions. "There are about one hundred of the barbarians above. Groten, take one end of the line, I will take the other, none are to forge ahead. When we reach the level ground at the top, start firing, make your shots all good, as you will have but little time before the battle will be at close quarters and we will be at a disadvantage." On this last steep slope we went very cautiously, and almost made the top before we were discovered by the barbarians. Three of them for some reason, came to our side of the top of the mountain and saw us there. We felled them instantly, but not before one of their number had given an alarm. I shouted the order to advance on the run. Stealth would not serve any purpose now. We sprinted for the top and made it. The slower Sen Lev were not yet half-way across the plateau. We fired on them point blank, but the very element of time prevented us from killing all of them although many fell as they charged across the narrow strip of land. "Keep your pistols ready to use in close fighting," was the command. They made good use of them and also good use of the short daggers that they carried, which they kept poisoned with a native poison. The fighting became isolated, as the Vereans dodged around their more powerful opponents. An ugly brute came at me and I found myself in the clutch of abnormally strong arms, while yellow fangs sought my throat. With all my strength, I brought my knee up in a wicked blow to the groin! I felt the grip slacken slightly. Again and again, I hammered away with my free leg at the same spot, the arms fell away from their grip and I was able to get in a terrific blow on his head with my clubbed pistol. The blow landed fair on the man's temple and I was free. Two others, rushing in, had seen their comrade fall, they hesitated momentarily and were lost. I brought the pistol into play and shot them down. Now I was glad that I had spent long hours in practise with the small arm. It was nerve-racking shooting and always the chance of killing friend as well as enemy, so fast was the action.

I freed Groten, an exceptionally good shot, and we worked our way carefully among the fighting groups. When a Verean got momentarily free of his attacker, the little energy-guns did their work. The wiry strength and speed of our men stood them in good stead now, enabling them to break away from their opponents. At last the slaughter was over, not a wild man remained alive on the mountain top, but nine of our original twenty lay lifeless, with skulls crushed, necks broken or with horrible wounds in their throats and shoulders, where the cruel fangs had found their mark.

WHILE the rest of the company finished the examination of dead and wounded, I went to the other side of the battle ground and peered down into the dim light below, to see if I could learn what the wild men had been trying to kill or capture before our advent to the scene.

The noise of our own battle having ceased, the voice of my friend came to me out of the darkness below, raised in a wild yell. "It is he," I cried. "Bring some lines."

The Vereans ran to my side, but to my dismay I found that none of us had brought a lasso of any sort! We appeared to be as badly off as ever, as far as helping Hughes was concerned. I estimated the distance at about ninety feet. The sides were quite steep and I was afraid that if I attempted to slide its length I would go over into the darkness below! Then suddenly, I thought of a familiar scene of my boyhood days, of a feat that I had often seen put in service in ice rescues.

"A human chain!" I cried. "Eleven of us will cover about eighty feet of the distance, I must get down there in some way. No arguments, Mu, this time I go first!' '

They caught the idea quickly and as quickly the chain was formed, hands grasping ankles, clinging with our bodies to the steep slope, the ladder of flesh extended on down into the darkness. The angle was very steep, but we managed to make a go of it. The last fifteen feet I must trust to luck that I would not have gained speed enough in a slide; so that the projection of rock below me would fail to arrest my slide.

I clung momentarily to my position at the bottom of the line. "Favors of fortune to you, Sen Eil," said the man above, "if you need help, shout and we will all try to make the descent."

I released my hold. Down I went, grasping for hand-holds to stay my flight, but picking up speed nevertheless. I came to a jarring stop when my feet struck the small ledge of stone, for a moment I thought that I would continue on over and I did not know exactly what lay beneath me! But I rose to my feet and shouted to the men above that I was safe, so far.

I PEERED over the edge of the rim, to see directly underneath me, one of the weirdest battles that man has ever witnessed! The giant earthman, clothed in a suit of mottled colors, swinging a long sword and opposed by a man, in stature, a dwarf by comparison, but commanding in action nevertheless. The wild man was swinging a huge club, which seemed as a feather in his grasp. No abysmal ignorance in the actions of this Sen Lev, but a cool and calculated science that I marveled at! This man was incomparably superior to the one that I had bested in the encounter at the top of the cliff. Bill I knew to be probably the best swordsman on earth, yet his thrusts and cuts were always met by the club. Even as I watched, spellbound, the sword was knocked from his hand and the Sen Lev prepared to finish his work!

This was no occasion for ethics and I could waste no time! I leaped through the air and landed, one hundred and sixty pounds of bone and muscle square upon the shoulders of the killer. Even enormously strong men, as these nomads undoubtedly are, cannot withstand such treatment and he fell to the ground.

"That was just the right moment to drop down from the skies!" was my friend's greeting. "When the sword left my hands, I thought that I had fought my last battle."

"He is coming to his senses," I said as I drew my pistol to finish the job,

but Bill stayed my too ready hand.

"Give me the pistol, I owe this one something; at one time he saved my life and I can only repay him by sparing him this time. I will speak to him, I know the lingo. Do not try to use the club, Ig," he addressed the savage who was now arising from the ground, "here I have one of the sticks that kill and this one has the magic. I will show you that I speak the truth." He pointed the weapon at the ground, pressed the release and a shower of sand arose as the bullets cut into the dirt. "We will let you live at this time, since once you saved me from the wrath of Urd. We will take you with us till we have gone through the pass in the mountains, then you shall be free to return to your people, after we have collected our men and have gone our way.

We tied the prisoner's hands and placed a gag in his mouth. Then we made our way, with as little noise as possible, to the other side of the mountain. About an hour afterward the sound of a voice speaking Verean was borne to my ears. "Release your man now, Bill. If any of my crew sees him, I cannot be responsible for what they will do to him!"

He cut the bonds that held the captive. "Go now, Ig. I am sorry that we must part this way, perhaps we shall meet again. Do not try to follow with your men, because in an hour we shall be far away in the serpent that flies." The wild man was sullen, refusing to answer my friend, but strode rapidly away into the dim light.

"It seems to me that we have released a dangerous enemy!" was my comment.

"No doubt we have, but in all justice to him, I could not do otherwise. The man is exceptional among his kind. It would be shameful to kill him, by using the knowledge that I have given to him, he can advance the people of his race a long way forward from their present mode of life. To me, the value of a man's life is in proportion to the benefit that he may give to the race in general. None other among the Dar has the intelligence to put and keep in practice the things that I have shown to Ig. I have been careful not to show even him too much."

I USED my signal pistol and received an answer from close at hand. "Groten?" I called.

"Aye, Sen Eil, and all the others that survive."

"You have a title, it seems," said Bill as we made our way in the direction of the voice.

"Yes, it means, Man of Magic. Every day I find it increasingly hard to live up to the name bestowed upon me by this race of men. Truthfully, I believe that the titles have been reversed. It is I who should look in wonder upon men who face the daily existence of these people with the equanimity that they show. As far back as they are able to remember, by legend handed down from father to son, they have been hunted and pursued by wild beasts and wilder men, always fighting a defensive battle, yet they have advanced in spite of these conditions. We are nearly there now, I will tell you of my many adventures at a later date and I am as eager to hear of yours."

The Vereans had a huge camp fire going by the time that we arrived; there was meat cooking over the open fire and great quantities of the popular beverage that they use, which tastes much the same as tea and of which I had become quite fond.

After the meal, we climbed the mountain once more and gave a fitting burial to the nine brave men that had fallen there. We covered the shallow grave well with heavy stones to protect the

bodies from the beasts and the huge bat-like scavengers of the air. Before we slept we moved the Transatel ship far to the westward.

The following day we lifted to high altitudes and at good speed headed into the west, away from the dreary oppressive section where dim light merges into flat, dead darkness. The return journey was accomplished in short order and I was glad indeed when we sighted the great mountain that is the stronghold of the Sen Ver.

"Is this our destination?" inquired Bill, as I circled the ship around the table-land above the Verean City.

"Yes, the entire nation lives inside the one huge mountain, which is a natural fortress. There they have lived for countless generations, tilling the soil of the surrounding valley and venturing into the great forests for game, which they dry and use as needed. Some distance to the west lay great morasses that merge into the boiling seas, where the water, flowing towards the edge of the planet meets the greater heat of the thin crust at that point, vaporizes and is swept back to the center of the cooler side. The huge banks of clouds that form in the west and sweep back over the land lead me to this conclusion. The half of this little planet that always faces the sun must be in a semi-molten condition, or at least temperatures must exist there that no life can withstand. The great speed at which the cloud bank travels accounts for the sudden, violent storms that increase in fury as the land of darkness approaches and greater condensation of the vapor occurs.

AS we came to lower altitudes, we could see a vast army of Vereans on the top of the mountains. Bill, watching their movements through the glasses exclaimed to me, "Hold the ship! Never since the days of Robin Hood has a man been privileged to witness such a display of archery as is going on below!"

With the ship held in mid-air we all watched the maneuvers on the plain below. Sen Eo had lost no time in getting his army in training. Line after line of warriors stepped forward, loosed an arrow and returned to the rear rank. A constant shower of the feathered missiles was in the air tipped with red, blue, gold and white plumes—a rainbow-hued shower of death to any enemy. Precise, thorough were the tactics of this little army drilling on the land directly under us. The Vereans in the ship exclaimed in wonder, since at the time of our departure the drilling of the army had been in the embryo stage. Groten was elated as he came to us.

"The Sen Lev can never rout us now," he said, "but the arrows are not of great use against the savage amphibians."

"The forces of nature are all about us," answered by companion, "man must learn to harness them to use against his stronger enemies."

Bill had been present with me that night of our first arrival at the surface of this world, and I knew that he had thought of some method of overcoming this menace, but as he is a firm believer in the idea that the brain cells become of value in so far as they are put to use, he was giving those that were most concerned a chance to work upon the problem.

"Let us flash the signal," I said. "I am anxious to land." Our lights flashed only briefly when we received an answer from the lookouts beneath us; truly marvelous is the keen vision of the Vereans.

Almost the entire population was there to meet us when we came to the surface, a great sea of pallid, upturned

faces. The Vereans are uniformly blond and all adults are much alike in size and facial expression. To some, this sameness might become monotonous, but to me it seems that it is a great equalizer. It puts aside the petty, personal prejudices and jealousies, since where there is no cause, there is in consequence, no effect. With their hereditary enemies, the Vereans must fight, bitterly and to the finish, but internal strife has no important place in their lives. Those that violate their simple laws and customs are tried, swiftly, conclusively and are banished from the settlement. They may go into the land of darkness or eke out a miserable existence on the borders of the great swampland; they never survive long.

CHAPTER XIV

The Sen Lev Threaten

THE following day, by way of diversion, my friend and I decided to make a tour of the valley where the people of Sen Ver raise their crops, by very crude agricultural methods. We had gone but a short distance when I saw in the distance what appeared to be a man, or a boy, riding upon the back of a small Troad. This aroused by curiosity at once, because I did not believe that the Vereans had domesticated any of the animals. We seemed doomed for a disappointment for the rider had sighted us, slid from the back of his mount and both animal and rider disappeared from view. I determined to stalk them to find out who this one was that was so secretive about his identity.

"I will go to the rise of land beyond where they disappeared from view and you watch, that they may not get out of our reach on this side," I said to my companion. "It is a waiting game, sooner or later they must move."

We lay for a long time before I finally located the hidden pair, the eyes of the beast had given their position away. I signaled to Bill and we closed in upon them. When close enough I spoke to the Verean boy and sheepishly he came from the clump of small trees, the beast following.

"Why did you hide from us?" I asked.

"I was afraid that you might send me home and kill or drive the Troad away," he replied. "My father has told me that I must drive him away into the forest, but he is gentle and will do almost anything that I wish and I did not want to lose him."

"Who is your father, my boy?" Bill inquired. "We will see him and ask him to let you keep the beast."

"My father is Mu-dan, my brother is Mu-kan who has been with you many times."

"Did it ever occur to you, that the animal, if gentle, can be trained to work?" He looked puzzled, and so in the soil of the hillside, with a little stick, I drew for him the picture of a horse pulling a cart.

It was amusing to watch the youngster study the rough picture. "What sort of an animal is it?" he asked.

"The animal isn't the important part of the picture, it is what he is moving that counts. A Troad might be in his place. On earth the animal is known as a horse. We showed to him in ten minutes, that invention that the men of earth worked upon for centuries to perfect, the most important invention of all time—the wheel.

"Get your brother, Mu-kan, to help you and see if you can build one of these, we will see you in a few days and find out what progress you have made."

We left him still studying the rough sketch on the ground, so deep in thought that he did not realize that we had gone. The beast seemed ideal for domestica-

tion. A smaller species of the great Troads of the inner lands, they are quite agile and sufficiently heavy for any reasonable load. In their native haunts they roam over the plains living on the surface growth. They show no tendency to attack, unless wounded or driven into a corner, in which case they are very dangerous, being both fast and strong. The flesh is very good to eat but they are not much hunted by the Vereans, having, in addition to good eye-sight, extremely well developed powers of scent and hearing.

I FELT sure that the youth that we had just left, aided by his brother, would be able to solve the problem that we had given him and forgot the incident as we became very busy trying to repair the damaged instruments of our ship in preparation for a return journey to earth. To pilot the ship close to the surface of some large body of matter was not difficult but to attempt to venture into the realms of space, where the locks must all be sealed, was impossible without the aid of instruments. We found, to our dismay, that the demolition of these instruments at the surface of the moon had been, in most cases, complete. With none of the delicate machinery necessary to manufacture these small parts, we were faced with a prodigious task. We did have the raw materials. Iron and iron ores are plentiful, as also are combustible compounds, but it is a long and tedious process to abstract the metals from their ores, then to design and build the machines necessary to make the numerous small parts that we needed. Neither Huges nor myself were trained as metal workers and so it became a question of trial by error, and it is surprising how many errors a man will make when he goes into a strange field of endeavor. As practical electric men we were both much more proficient and in the course of a few months we had harnessed the sizeable river that flows around the base of the mountain. One of the first things that we built was a great barricade of wire completely around the domain of the Vereans, particularly designed to keep out the monsters of the sea. We had an unlimited supply of help and the Vereans learned as we went along.

The people of the nation were all busy and happy. Each day's work saw an improvement in their mode of life. Each new process that they learned was carefully written down on tablets of Ek-Thon, so that the knowledge they were now acquiring might not be lost to succeeding generations.

END OF PART II

NOTE: The planet Mercury completes its orbit around the sun in 87.97 days, approximately one-quarter of the terrestrial year. Its period of axial rotation is probably about the same as the above figure. This operates to give nearly a semi-area of darkness. It is on these figures that our story rests in part. It may approach the earth at perigee (the nearest approach of any planet) to within about fifty-six million miles.

The Million Dollar Gland

By W. ALEXANDER

Some of the most recent discoveries or developments of former discoveries refer to the functions of the very famous glands in our anatomy called the ductless glands. They are supposed to have all sorts of effects on the human organizations, and here we have described the work of a psychological gland.

THE occasion was a dinner of the executive board of the Community Chest—seven men and three women—celebrating the conclusion of their drive for funds. Owing to the condition of the money market, strenuous effort on the part of the workers had been necessary toward the last, but tonight they were happy, the objective of $250,000 had been reached on the previous day.

Through the evening the toastmaster had called on various members of the board for a few words, and in response most of the short speeches had been devoted to praise of certain merchants and business men for their generosity. However, a few touched on the niggardliness of some wealthy citizens, one in particular coming in for considerable criticism. Finally, the toastmaster called on Doctor Wentworth, and as was usually the case, when he could be persuaded to talk, his remarks were somewhat in the nature of a bomb-shell to the diners.

After he had paid a glowing tribute to the budget committee for their arduous work in compiling data showing the needs of the dependent charities for the ensuing year, he continued: "As I sat here listening to the praise meted out to those citizens who have donated liberally to this worthy cause, and to the more or less derogatory remarks anent those who did not, as a scientist I rebelled.

"My dear friends, you are probably not aware that there is no more reason for praising a person from whom you have received a generous contribution, than there is to praise him for having white skin instead of black. Please be informed that the degree of one's generosity or parsimony, is absolutely controlled by a ductless gland. In the body of a generous person, this gland is well developed functioning actively in its discharge of hermones into the blood. The contrary is true in the body of a parsimonious person; there this gland is found to be atrophied and functions but feebly.

"All of you are more or less familiar with my work in the field of gland therapeutics, so I think you should be willing to take this as a fact; a display of generosity is merely the manifestation of a physical condition. It is not —popular belief to the contrary notwithstanding—an impulse of the heart, or if you like, of the soul. This being true, it becomes the height of folly to

censure the niggardly person, he having but followed the natural impulse of his physical being, over which he has no more control than over the color of his eyes or shape of his head. Take this fact into consideration when next you are inclined to praise or censure some one for the measure of their giving. I trust that I have not bored you. Thank you."

"Indeed you have not bored us, Doctor," assured the toastmaster, "you have advanced a theory that I am sure is new and strange to us all. Speaking for myself, you have cut considerable ground from under my feet; when I have given generously I have been in the habit of patting myself on the back."

Several others enthusiastically expressed their interest and begged him to tell them more of this gland.

"No," replied the doctor with a smile, "that is enough shop-talk for to-night. I will tell you, however, what moved me to speak. You have mentioned a certain wealthy man repeatedly this evening, lauding him to the skies for his generosity. Another wealthy man too has been mentioned, and him you have condemned for his small donation. Both of these men, it so happens, have been patients in my hospital within the year for minor ailments. During the regular course of their treatment it was necessary for me to thoroughly examine the condition of all of their glands.

"In the case of one, the gland I have described—and by the way, for obvious reasons I have named it the Donor Gland—was fully developed, emitting its secretions into the blood in a powerful stream. In the case of the other, the Donor Gland was undersized and shriveled, sending forth but a feeble flow of its secretion.

"You will now readily understand why it seems ridiculous to me, for you to condemn the one and praise the other, knowing that in twenty minutes I could perform an operation that would completely reverse their attitudes toward contributions such as the Community Chest fund."

Two weeks after the dinner, the doctor received a telephone call from Judson Bailey.

"Doctor Wentworth," said Bailey, "I wonder if I could see you at your home to-night. You are always very busy at the office and the matter I wish to discuss with you might take too long, possibly interfere with other appointments."

"That will be quite all right, Judson," replied the doctor, "make it about eight o'clock."

When he had replaced the receiver, the doctor leaned back in his chair and mused for a moment on Judson Bailey, wondering what it was he wished to take up with him. He remembered hearing recently that Judson was rated as one of the wealthiest, if not the wealthiest, man in the city. He had been a patient in the doctor's hospital some months previously for a minor ailment, and during the time of his confinement they had become very friendly. He was a bachelor, thirty-two years of age and had made the bulk of his fortune in oil, somewhere in South America.

While he had large real estate holdings in the city, he took no part in civic affairs and bore the reputation of being stingy in his contributions to charities or civic improvements. While he was willing to buy anything that promised a profit, when it came to donating money for any purpose, he seemed to think no more of a dollar than he did of his right leg, and walking was his favorite exercise. The doctor laughed quietly to himself as he remembered his talk to the board of directors at the Community Chest dinner, as Judson was the parsimonious individual whom the others

had criticized so bitterly. He had defended him, because in the week he had spent in the hospital, the doctor had found him to possess many sterling qualities. There was no trouble he would not take for one he liked, in fact he would do anything but give money.

"Well Judson," said Doctor Wentworth to his visitor when they were seated in his library that night, "what have you on your mind?"

"Doctor," replied Judson, "some remarks you are supposed to have made at a dinner a short time ago, were repeated to me. I have been wondering if you were spoofing, or whether you were in earnest. I understand that you said that a man's willingness to give was regulated by a gland in his body. That seems preposterous to me, but then so did many other of your discoveries of the influence of glands on human behavior seem at the time."

"No I was not spoofing," answered the doctor smiling, "and I don't mind telling you, Judson, that the remarks you quote were made in your defense."

"Huh!" grunted Judson, in scorn, "that Community Chest bunch were panning me I suppose, because I wouldn't donate to their fund."

"That was it; I explained to them that the fault was not yours any more than the color of your eyes or shape of your head—generosity being entirely regulated by the condition of a certain gland."

"Tell me more about it, Doctor," said Judson with interest, "it certainly is a surprising thought, for the stingy man has always been looked on with contempt; how well I know it."

"It was several years ago," the doctor explained, "when I became convinced that the degree of one's generosity or parsimony must surely be controlled by a gland in the body. I began compiling data from patients passing through the hospital, noting the condition of all glands in the body, then later supplementing these notes with additional data of what I could learn about their private lives. The degree of their generosity or parsimony was exactly noted on the chart.

"After accumulating data on some two hundred cases, it became evident that my guess was right, the chart showing close relationship between a certain nameless gland's condition and the person's known inclination toward generosity or parsimony. The gland lies to the left and just above the heart, and scientists had never been able to agree on its functions.

"I named the gland the Donor Gland, and do you know, the ancients must have had some inkling of the truth, for our word generous is derived from a Latin word meaning noble born, or of noble birth, showing their belief that generosity was born in one and was not a cultivated trait."

"You sound convincing, Doctor," said Judson thoughtfully, "but what is the remedy? If this Donor Gland is subnormal in a person, can you do anything to make it normal?"

"Yes, indeed," assured Doctor Wentworth, "I can operate and graft on a sufficient amount of gland tissue to bring it up to normal size, it will then function in a perfectly healthy manner."

"Well, Doctor," sighed Judson reluctantly, "I guess its up to me to take the cure. For reasons which I needn't explain just now, I must get rid of my penurious streak, or I bid fair to lose the one thing in life that I most want. I know I'm tight, but darn it I just can't help it. I am square and honest, never tricked a man out of a cent in my life, but when it comes to giving away money for any purpose, it causes me almost physical pain. How much is the operation going to cost me?"

"I'm not telling you that now," laughed the doctor, "If I did you would probably want to haggle and bargain. After the operation, with the new gland functioning, we will have no trouble in agreeing on the price."

"Sounds like trouble ahead," grumbled Judson with a wry smile, "but I guess I've got to go through with it no matter what it costs. When can you operate?"

"You can enter the hospital to-morrow, you will probably be confined there for a week."

THE city was in a political turmoil, a number of the best citizens were determined to oust the reigning powers known as the City Hall gang. These representative business men wished to put a complete ticket in the field for the coming election but had been unable to find just the right man to head it as candidate for mayor. The grafting of the City Hall gang was an open secret and it was thought, with a proper man to head the ticket, the people would show by their votes a desire for a change in the administration of the affairs of the city.

About two weeks after Judson Bailey left the hospital after a successful gland operation, a mass meeting of voters was called to consider the advisability of voting bonds for a bridge across the river at the north entrance into the city. Arthur Sewell, an attorney, opened the meeting with an eloquent plea for the bonds, pointing out that all traffic now from the north must pass over the one narrow bridge which was entirely inadequate to take care of the immense increase in automobile travel. He was followed by Doctor Wentworth and several others speaking along the same lines.

Then Judson Bailey arose from the audience and addressed the chairman.

"Mr. Chairman," he said, "I am not on the program, but I would like to be permitted to say a few words."

"Certainly, Mr. Bailey," answered the chairman cordially, "come up to the platform."

He walked up to the platform and began: "Mr. Chairman, Ladies and Gentlemen, there is one aspect of this proposed bond issue that none of the speakers have touched upon. It is my understanding that the estimated cost of the bridge is $250,000. Under the laws of California the present bonding margin of this city is only about $400,000, and if this bond issue was voted, it would leave a margin of only $150,000 for any future emergency. That is not a safe margin. Something might happen to our water supply, a dam go out or any number of things might happen, where we would need more money than that bonding margin would allow us to vote under the law.

"I own considerable property in the city and county, and have never done very much toward civic improvement. Now I propose to build this bridge myself, donate it to the city and it wont cost you a cent, and our bonding margin will still be intact."

As Judson left the platform, the audience went wild with enthusiasm, shouting their approval and throwing hats in the air. Doctor Wentworth, believing that it was a psychological moment, stepped to the platform and receiving a nod from the chairman, addressed the meeting.

"Ladies and gentlemen," he said, "we of the anti-City Hall crowd have been looking for a candidate for mayor, a successful, honest, farseeing business man. Where could we find a better man than Judson Bailey? Let us draft him to head our ticket. What is the sentiment of the meeting?"

"Yes, yes, Judson Bailey for mayor, Judson Bailey for mayor," came the

cries from all over the room, showing a large majority favored the idea. When the meeting adjourned a committee met and appointed three of their number to call on Judson and secure his consent to head the ticket against the City Hall gang.

The committee had some difficulty in persuading Judson to make the race, but when they pointed out the inefficiency, grafting and extravagance of the present administration, which was reflected in high taxes, he finally consented.

HE threw himself into the campaign with the vigor which characterized everything he did, making speeches daily in various parts of the city to arouse the voters to a knowledge of the deplorable conditions existing in the city government. At one of his first meetings, his attention was called to the condition of the streets surrounding ten of the city's school buildings. One half of the streets were paved and charged to adjacent property, but the half lying next the buildings remained unpaved, the school-board claiming to have no money with which to pay for paving. Judson immediately asked the school-board to let the contract for the paving and gave them his check to cover.

At his next meeting he was asked to build an additional dormitory for the Helping Hand Children's Home, and his check was promptly forthcoming. Then it was Branch Libraries, lights for the new municipal airport, a Welfare Building and so on, each neighborhood needing some civic improvement, and his answer was invariably a check. At last his friends became uneasy—they knew nothing of his operation—but when they remonstrated with him, he only laughed and said he was having a lot of enjoyment from it.

On the day following the election which had swept Judson and his ticket into office by an overwhelming majority, a lady came hurriedly into Doctor Wentworth's office.

"Oh Doctor," she cried, "you must stop them."

"Why what is the matter, Miss Lanning," said he in surprise, noting her agitation, "stop whom?"

"Oh, they are going to get Judson to sign a contract to build a new City Hall. And he's crazy enough to do it too, if you don't stop him. A committee is to meet him at his office this morning at ten, and it's nine-thirty now."

"Very well," answered the doctor reaching for his hat, "we will start for his office and you can tell me the trouble as we walk along."

"I feel responsible for his actions in giving away so much money," Miss Lanning explained as they decended to the street in the elevator, "you remember I was present at the Community Chest dinner when you made the statement about the Donor Gland. Judson has wanted me to marry him and while I love him, I refused because I thought we could never be happy together, on account of his parsimonious habits. Then I told him about the donor gland and asked him to see you. You operated on him and since that time he has been giving his money away like a drunken sailor."

"I am surprised at what you say," said the doctor with deep concern, "you see I have been out of town since the night he offered to build the bridge, and didn't know about it."

"Why I figured up last night," said Miss Lanning almost in tears, "and he must have given away at least a million dollars. Now they have it all framed to get him to build a new City Hall, call it the Judson Bailey City Hall, and it will cost over a million and a half."

"We must put a stop to that," said Doctor Wentworth decisively as they

approached Judson's office, "Something must be wrong with that gland."

Crossing the outer rooms, they entered the private office and found three men on one side of a desk and Judson, with a legal-looking document before him, on the other. As they quietly entered, one of the men leaned over the desk and pointing to the line at the bottom of the document, said: "Sign it right there, Judson old man, and this city will have the finest City Hall on the coast and it will always be known as: 'The Judson Bailey City Hall.'" Judson smiled and picked up a pen.

"Just a minute, Judson," said Doctor Wentworth reaching for the paper, "Miss Lanning wants to see you for a moment."

"Hello Doctor, how are you Lucy?" said Judson getting up and walking toward the outer office with Miss Lanning, while the doctor putting the document in his pocket, followed them out and closed the door.

"Miss Lanning wants you to go over to the hospital at once with her, Judson," said Doctor Wentworth briskly. "We'll explain as we go. Tell those chaps in the front room that you will talk to them to-morrow about the City Hall proposition."

"I'll sign their contract and be right with you," said Judson starting for the front room.

"No, no, Judson," pleaded Miss Lanning, "let the signing go until to-morrow, I want to talk to you about it."

"Sure, all right," agreed Judson amiably, "I'll tell them."

As they drove toward the hospital in Judson's car, Doctor Wentworth explained: "I haven't had time to check the figures—just got back to town this morning—but from what Miss Lanning tells me, I know that my laboratory chemist must have made a mistake in the dimensions of your new Donor Gland. I can correct the matter in ten minutes by a small incision and it will give you no further trouble."

"Just as you say, Doctor," replied Judson, "but it seems O. K. to me."

Judson Bailey called on Doctor Wentworth about a month after the second operation. "Well, Doctor," he remarked, taking out his checkbook, "you said you would tell me after the operation what it was to cost me. What's the bill?"

"Judson," asked the doctor thoughfully, "how much money did you give away between your two operations?"

"About a million," laughed Judson, "and I was just getting a good start. If you hadn't performed that second operation, I guess I would have been a pauper in sixty days."

"Well, you don't owe me anything," said the doctor, "and I'm very sorry for the error."

"You don't need to feel sorry, Doctor," consoled Judson, "I have no regrets. I never had such a good time in my life, it was just like being on a big spree with no next morning headache."

"Did it cripple you financially?"

"Oh, no," answered Judson with a laugh, "I have plenty left. Then too, it won me a wife. Lucy wouldn't marry me before because I was too tight; now she says she is going to marry me to keep me from being too loose."

"Well, Judson," said the doctor as he shook hands with him, "at least you have the only million dollar gland that I know of in the country."

THE END

On the Screen

Conducted by C. A. BRANDT

"TARZAN AND HIS MATE," adapted from the Tarzan Stories of Edgar Rice Burroughs, is decidedly the best Tarzan picture produced so far. The previous Tarzan films did not appeal to me at all, in fact I thought them very stupid, but the present picture directed by Cedric Gibbons, ex-Metro-Goldwyn, is really first class entertainment. It is magnificent in its conception, and in spots, due probably to excellent trick photography, thrillingly brilliant.

I am not a "Tarzan Fan" and I have always considered the Tarzan yarns as well done Juveniles, but the expertness of the Director, who uses a lot of splendid imagination, makes this particular picture quite enjoyable even for critically inclined grown-ups. The film even has a well defined plot, something like this: Jane Parker has been living with Tarzan in his Jungle kingdom for some time, apparently getting accustomed to the rough life, as she seems almost as proficient in aerial acrobatics, swimming, tree climbing, etc., as Tarzan himself. Two ivory hunters, in possession of an old map which shows the location of one of those legendary Elephant Burial Grounds, decide to take Jane back with them to civilization, if they find her. The ivory Safari contacts with Tarzan, and though Jane is sorely tempted by far away civilization, she decides to stay with Tarzan and remain queen of the Jungle. Tarzan refuses to help the ivory hunters find the elephant burial grounds, and in a rage one of the hunters shoots Tarzan's pet elephant, who mortally wounded makes for the burial place of his race, followed by the ivory hunters. They see him enter a secret valley, the entrance to which is hidden in a waterfall, and as they enter it they see the ivory hunters' dream come true: hundreds and hundreds and more hundreds of tusks. Next morning Tarzan is shot and apparently drowns. But now the "Deus ex Machina" takes a hand in the shape of a very realistic hippopotamus, on whose back Tarzan emerges from the river. Jane is in despair, being assured by the ivory hunters that Tarzan is surely and finally dead, she decides to go back to civilization with them, when she is informed telepathically by one of our old friends, the ultra-comical Chimpanzee, that Tarzan lives, so Jane returns to the Jungle. Next day Tarzan summons his elephant friends, and they force the ivory hunters to abandon the ivory. This particular part of the picture is particularly well staged, Towering cliffs, and a well sustained air of mystery lend a peculiarly enchanting aspect to this scene.

All in all it is a picture worth while seeing.

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACT OF CONGRESS OF MARCH 3, 1933,

Of AMAZING STORIES, published monthly at

Chicago, Ill., for October 1, 1934.

State of New York } ss.
County of New York }

Before me, a Notary Public in and for the State and county aforesaid, personally appeared Lee Ellmaker, who, having been duly sworn according to law, deposes and says that he is the Business Manager of the AMAZING STORIES and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of March 3, 1933, embodied in section 537, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business manager are: Publisher, Teck Publications, Inc., 461 Eighth Ave., New York, N. Y.; Editor, T. O'Conor Sloane, 461 Eighth Ave., New York, N. Y.; Managing Editor, None; Business Manager, Lee Ellmaker, 461 Eighth Ave., New York, N. Y.

2. That the owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and address of stockholders owning or holding one per cent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a firm, company, or other unincorporated concern, its name and address, as well as those of each individual member, must be given.) Teck Publications, Inc., 461 Eighth Ave., New York, N. Y.; Lee Ellmaker, 461 Eighth Ave., New York, N. Y.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: (If there are none, so state.) None.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

LEE ELLMAKER, Publisher.

Sworn to and subscribed before me this 1st day of October, 1934.

CHARLES F. BRAND, Notary Public.
Westchester County.

N. Y. County Clerk's No. 675.
New York Register's No. 5-B—405.
My Comm. expires Mar. 30, 1935.

DISCUSSIONS

In this department we shall discuss every month topics of interest to readers. The editors invite correspondence on all subjects directly or indirectly related to the stories appearing in this magazine. In case a special personal answer is required, a nominal fee of 25c to cover time and postage is required.

A Letter from One of the Fair Sex, and a Most Appreciative Reader

EDITOR, AMAZING STORIES:

I have been reading AMAZING STORIES for over three years now, and I want to congratulate you on your continued high standards. Your illustrations are especially good, and I look forward each month to seeing another of Morey's covers.

My favorite authors are John W. Campbell, Jr., Clark Ashton Smith, Stanton A. Coblentz, and, of course, Dr. Smith. Couldn't we have some more stories like "The Black Star Passes," or "Islands of Space?" Yes, I like interplanetary ones the best.

I am a college student majoring in astronomy, physics and mathematics, so I really started reading your magazine for the science in the stories. Now, however, I read them just as much for their imaginative quality.

Try to keep away from the eternal "Malignant Entity" theme, monsters and too many wars. And I do prefer the larger size, although I realize that you can't keep on changing. It makes an awful mess of one's files as it is.

MISS HOPE WILLIS
12 East 88th Street—Apt 7C
New York City, N. Y. C.

[It is pleasant to get a letter from one who tells us she is a college student and doubly pleasant when she is of the fair sex. We are delighted to get compliments from one who has selected for her curriculum such advanced subjects as you have.—EDITOR.]

An Appreciation of Good Planetarians

EDITOR, AMAZING STORIES:

I have just finished reading "Master Minds of Venus" in the September issue. I consider it the finest of that type story I have ever read. I particularly noticed the fact that it is the only story I have ever read where the interplanetary visitors weren't villians and troublemakers, bent on looting the earth or having some other villainous scheme.

I am very much interested in radio, chemistry, electricity and have a fairly big stamp collection. I would like to correspond with any other readers who have any of these interests. I assisted in the construction of W2AZQ and W1BYO Transmitting Stations in Maine and I am now working on one of my own.

I honestly consider AMAZING STORIES the finest of the future fiction magazines.

JOHN GOLDSTON
272 W. 90th Street
New York City, N. Y.

[We feel as you do about the dwellers on other planets—why should they not be as good as we are? In the light of events in recent days it should be easy for them (if there are any) to put us to the blush.—EDITOR.]

An Entertaining Letter for Some of Our Authors to Consider

EDITOR, AMAZING STORIES:

At last an issue which is good enough, at least to our taste, to pay for another three year subscription. Have only read "The Master Minds of Venus" and the E. E. Smith-J. L. Burtt controvery. But that's enough to be forgiven for a lot of sins. That Sonnemann story is excellent and I do hope to read many more of his. Something decidedly not "pulpy" and blood and thundery. But lets get our oar into that Smith *versus* Burtt argument.

I don't remember "The White Dwarf" and am too lazy to dig it up again. Of "Terror Out of Space" I only remember that it was well-written, but found no science in it to stick. And eventual errors must have been of the conventional type, else they would have stuck. So much for Smith. Now lets have a go at Burtt.

It is our belief that space travel at speeds greater than light is possible, Einstein and Fitzgerald notwithstanding. Let's look at what *is* mass or inertia. It seems to us that the velocity of light is the natural wave-velocity of the ether. That a body traveling at the speed of light has infinite mass, as it then travels in its own ether wave. The analogy that fits here can be found in the synchronism of A-C motors or generators hanging in the net. Once they are in phase, it takes an awful wallop, relatively, to knock them out of it. It is my contention that given the necessary power it is quite possible to travel at the speed of light, and given again the power to slip the phase, to go beyond the speed of light. Also: the mass of a body is a factor of its difference against the speed of light. You math sharks go and work that out. Accordingly, once the speed of light is passed, the mass will decrease.

Smith also is right in his contention that an inertialess body will stop dead without any friction or appearance of liberated power, as soon as inertia is put back. Why? Inertia

is a function of mass. A body without inertia cannot have mass. Ergo, X speed, acceleration and deceleration can be attained with a minor fraction of one fleapower. The restoration of mass or inertia would just give the space ship the speed of the part of the universe it happened to find itself in at the particular moment.

It is my contention that at a speed of twice light a different universe will appear, intangible to our universe of light-velocity—that this will repeat itself at every doubling of the critical velocity. That a body traveling at twice light velocity can pass right through any body of our universe without anybody knowing of it because both bodies would be intangible to each other. All this is provable by analogy and deduction. Progress does not come through facts which fit accepted laws, but from such facts which contradict accepted theories, and there are plenty such. Strike me pink, the page is full. Give us more and better controversies.

Yours till the Alpha Centaurians come,

FREDERICK G. HEHR
Box 875
Sayville, N. Y.

[We think that Mr. Burtt and Doctor Smith will both be very much interested in reading this letter. You may have noticed that in the famous contest one of the writers said he had made a mistake in the story which was undetected so far by anybody. Your distinction between progress through what is known and through newly discovered factors is quite interesting.—EDITOR.]

A Reader Wants to Open a Correspondence with Someone

Editor, AMAZING STORIES:

I have been a reader of your magazine for some years. When I first started reading AMAZING STORIES I saved them. I now have a good many of them, all in perfect condition. I'm willing to part with them. I have quarterlies of 1928 and 1930, the monthlies are of 1929, 1930 and 1931.

I'm sure there are some of your readers who would like to read such stories as "The Sunken World" by Stanton A. Coblentz and the "Moon of Doom" by Earl L. Bell.

I will greatly appreciate it if you publish this. If there is anyone interested write to me.

Nelson Franke,
567 East 38th St.,
Baltimore, Md.

AMAZING STORIES Has a Long Way to Go—We Hope It Will Be a Good Traveler

Editor, AMAZING STORIES:

AMAZING STORIES is improving. At least it is better than it was at the beginning of this year, but it has a long way to go to equal the old AMAZING STORIES of 1927 and 1928. Among the best stories of science fiction ever printed are:

1. The Skylark of Space by Smith.
2. The Moon Pool by Merritt.
3. Land that Time Forgot by Burroughs.
4. The Face in the Abyss by Merritt.
5. Skylark Three by Smith.
6. The Second Deluge by Serviss.
7. The Sunken World by Coblentz.
8. The Master Mind of Mars by Burroughs.
9. The Red Dust by Leinster.
10. Station X by Winsor.

These are only a few of the old masterpieces. If we can't have this type of story these days why not reprint the best of them in the quarterly. You have reprinted "The Second Deluge," and "The Sunken World," why can't the next quarterly contain "The Skylark of Space."

John Lemberakio,
154 No. Willow St.,
Trenton, New Jersey.

(The first sentence of your letter is encouraging to say the least in view of its succeeding paragraphs. You are certainly naming the work of favorite authors who made the magazine what it is.—Editor.)

A Few Very Acceptable Words on the September Issue

Editor, AMAZING STORIES:

Too busy to write, but I do want to say that you did a great job on the September AMAZING STORIES. Keep up the good work—we're for you in a BIG way.

Lewis F. Torrance,
1118 Fifth Avenue,
Winfield, Kansas.

(We have published in our honesty and perhaps modesty so many criticisms that these few lines are most acceptable and we feel justified in publishing so flattering a comment in view of the thought that has been devoted to AMAZING STORIES, your magazine, by us.—Editor.)

Notes on the September Issue of AMAZING STORIES

Editor, AMAZING STORIES:

The September issue was represented with a nice story content.

"The Master Minds of Venus" by the new author Wm. K. Sonnemann, makes me express the wish that he return soon with another story.

"The Moon Pirates" and "Through the Andes" start off good.

The short stories were quite interesting.

When will stories by Edmond Hamilton and Jack Williamson appear?

Jack Darrow,
4224 N. Sawyer Ave.,
Chicago, Illinois.

(We cannot tell you exactly when stories by particular authors will appear except as far as one or two issues in advance are concerned, but you will be interested in observing that our best known authors are favoring us and we are holding fast to old-time favorites.—Editor.)

An Accident in the Antipodes

Editor, AMAZING STORIES:

Picked up one of your magazines by accident some time ago, and as soon as I read it I went and ordered it for every month.

Had some trouble for a while to get each months but everything O. K. now.

I wouldn't miss it for the world and in the future I will be a constant reader.

Can you tell me if I can get such books as the "Conquest of Mars," etc., if so please let me know. Am waiting anxiously for next months AMAZING STORIES and won't rest till I have it.

Vernon T. Kittle,
Bay Motors,
Gawler St., Portland,
Victoria, Australia.

(We have received a number of letters from the Antipodes and now we have a most friendly one from Australia. There should be no difficulty in getting the magazine in your country for we have many readers in that distant continent and the letters we have received from readers there have operated to give us an especially friendly feeling for your country. We will be glad at all times to hear from you. Send us a list of books desired and we will see what we can do for you.—Editor.)

Pleasing the Many Readers of AMAZING STORIES

Editor, AMAZING STORIES:

After re-reading Dr. Keller's grand novel, "Life Everlasting" and noting his answer to a critic in the latest issue, a question arises in my mind as to whether his ending was really logical, or not. It was, of course a very fine ending from the human viewpoint, and "Life Everlasting" stands out even as so many of his other works. But there is one point that troubles me, and I wonder if you would be so kind as to publish this and ask Dr. Keller to clear the matter up for me.

The wonderful serum that the scientist discovered, was nothing more than a drug and as such had its affect upon those who took it. Their entire make-up was changed: the courtesan no longer found pleasure in vice, the physically sick were cured, and the mentally diseased were changed. In other words, *THEIR ENTIRE OUTLOOK* was altered, for that which before seemed perfectly natural to them, now was unthought of. Not only did the murderers stop their practice, but the entire idea of taking the lives of their fellow men became alien to them.

Now, the act of killing in itself is natural, instinctive, is it not? But as minds of men have evolved, it has become gradually different; now although men still cheerfully slaughter their friends under the proper provocation, they do not look upon the act as perfectly natural, and in cases of mass murder known as war, they use their highest ingenuity to convince themselves that it is quite all right.

The drug so altered their make up, that they never thought of this any more in the story.

Now, carrying my reasoning a step farther, the desire for children is purely natural, and for the most part instinctive. Man has developed a state which he terms love and much is done under that heading, but underneath is the old inborn urge to multiply.

WHY DID NOT THE SERUM CHANGE THAT?

It seems only logical, that since the action of the drug caused the rest of their make up to evolve (if I may use that term) that it would go the full length of the run.

What would the world be like then? Some science fiction authors have pictured such states. There would be no more relations between sexs as the fundamental urge would have passed. There would certainly be biological changes in form. Perhaps a race such as the Conquerors would be the final result.

At any rate, I would like to have Dr. Keller's views on the question.

And in closing, Mr. Editor, I can truthfully add a bit of commendation for you. True, your magazine (for after all you are running it along your own ideas; the readers have been harping for certain changes in every issue, and although you constantly remind us that you are merely bowing to our wishes, few of them have come true.) is not all that I would like it to be, but just the same, for the past two issues, I have really enjoyed reading AMAZING STORIES, and am counting the days before the next issue will appear. Which is more than I had been doing for the past year or so.

Your serial policy is fine; in fact certain others are flattering you by imitating it. Especially commendable is the idea of having serials start (I mean both of the two current) and end in the same issue. Overlapping of serials is at best a cheap practice, and you (if you don't fall below your present standing) are hardly in need of it.

Also note with joy that Morey (whom I and others have so earnestly tried to banish) is doing good work lately. We realize that he *is* a good artist *when he wants to be.* So all in all, A. S. is good to the last drop and a true aristocrat.

Robert W. Lowndes,
Co. 178 C. C. C.,
Flagstaff, Maine,

(We think it is hard to say that the act of killing is instinctive. It seems to be so with some people who hunt to kill as distinguished from those who, by some perhaps distorted operation of the mind, think they are hunting for sport. The opinion of the writer is that there is more sport in shooting at clay pigeons than there is in releasing unfortunate birds from a trap to be shot at and often to fall wounded and suffering to the ground. We may ask what proper provocation may be to induce a man to slaughter his friend. Some of that

process seems to have been applied recently in Europe. We are doing what you call "Running the magazine" along our own ideas and these ideas are definitely to please our readers. It is not easy to see how the ideas of numerous correspondents could all be fused into the production of a magazine. Whatever we are doing, your letter shows us that we are pleasing definitely a critical reader, and to please a critic is quite a triumph.—Editor.)

A Chance to Compare Two Artists

Editor, AMAZING STORIES:

I have just received my fall, 1934, Quarterly—much belated I must admit—but nevertheless I have it.

The issue discloses a wonderful thing: The superiority of Morey over Paul. In that issue we have the works of both artists. It is easily ascertained who is the best of the two: Morey. That cover was wonderful, so was the inside drawings—and Paul's—well!!!

There is one thing I didn't like about the issue: No letters. Why? You say you have so many you can't print them all in the monthly—the Quarterly would be a good place to dispose of some of them. (I should think.)

J. H. Hennigar,
East Tawas, Michigan.

(We have long felt that Morey's work as an artist is most satisfactory but it never occurred to us that we were supplying the matter for a comparison between the two artists named. We were so anxious to give a good quota of stories in the Quarterly that we made it a completely literary issue and we still believe that that met the approval of our readers. —Editor.)

Pleasing Everybody All the Time

Editor, AMAZING STORIES:

I have been reading your magazine for about two years and thought that it was about time to give you my opinion of the same.

The stories I always thought very excellent with the exception of one or two which only goes to support Lincoln's quotation—"You can fool (or suit in this case) some of the people all of the time, and you can fool (suit) all of the people some of the time, but you can't fool (suit) all of the people all of the time."

My choice of the stories in the September issue is as follows:

1. Master Minds of Venus—Very good. I would like some more of this type.

2. Through the Andes.—This is also very good but has one bad feature, it is a serial.

3. The Moon Pirates.—This is just about two points below "Through the Andes."

The rest of the stories are just mediocre. They make good reading but, create no lasting impression.

The cover design was very good as was the editorial on paper and printing from which I learned a couple of new facts. In general it is an excellent all around science magazine.

I would welcome correspondence on matters covered by the stories in your magazine from persons in this or other countries.

Frank Sullivan,
91 E. Lacrosse Ave.,
Lansdowne,
Penna.

(We think that some of our critics will find the operation of pleasing all the people all the time not only difficult but impossible. You will find one correspondent who wishes two serials to be kept running all the time. We wonder how you would proceed to please this correspondent and yourself. This puts before you one problem which our Editorial Staff have to solve.—EDITOR.)

A Commendation of the Starting Two Serials in the September Issue

Editor, AMAZING STORIES:

Let me congratulate you on your selection of the two new novels that began in the September AMAZING STORIES. Neil R. Jones and A. Hyatt Verrill are both able writers, and these two new novels promise to be most interesting ones. Another sensational feature of this issue was William K. Sonneman's short novel, "The Master Minds of Venus." Amazingly different from the usual run of interplanetary stories, this story is worth reading again. Clark Ashton Smith's short story, "The Plutonian Drug," was, as usual with Mr. Smith's stories, beautifully written; but the plot was none too good. Mr. Smith has given us better pieces of science fiction than this.

Harl Vincent's "The Barrier" was nothing exceptional. Entertaining enough, however. The short-shorts by Milton Kaletsky and Donald Matheson were as good as these appetizers can be. For my part, one of these short shorts is enough in one issue. Give me long, meaty stories.

Keep two serials running all the time. Morey's September cover was good. He seems to be entering a new era in creative drawing. His last few covers have been symbolic of the contents of "Amazing Stories." Keep up the good work!

See you next month!

Dan E. Anderson,
East New Market, Md.

(Morey is at last receiving credit for his work which credit we feel that he has long deserved.—Editor.)

The Mechanics of Atoms and Molecules

Editor, AMAZING STORIES:

Although I too see the desirability of occasionally sacrificing entirely, or merely altering existing theory and fact to the convenience of your authors, nevertheless I believe that "The Molecule Trapper" in your September issue was inexcusable. Although I do not wish to be any more caustic in my criticism of a female writer than a male, nevertheless I believe Mr.

Matheson would greatly profit by an elementary course in high-school chemistry.

Mr. Matheson asserts, and quite correctly, that as the pressure on the brick, or the steel "egg shell" increased, the temperature would diminish. But in "The Molecule Trapper," no pressure was exerted. Here is what happened.

The brick shrunk due to the fact that the atoms of its composition were pressed together. The space, therefore, between the atoms was diminished. That space being diminished, the molecules, which the atoms make up, not only approached each other but also diminished in actual size. Therefore, it is my contention that no change in temperature would occur because the ratio of the size and distance of the molecules would remain virtually the same.

Now for question and answer number two.

Mr. Matheson further contends that when the steel shell containing helium was placed between the electrodes, the shell contracted while the helium did not, thus compressing the gas to a point verging on zero, making the shell and its gas a bomb of high potentiality.

Why, pray, did not the helium also contract? The brick contracted equally, through and through, why not the shell and its contents?

Now although I believe my criticism justified, nevertheless, Mr. Matheson's story was so finely executed from the literary side that I believe it very commendable.

Gilbert Cohn,
Brooklyn, N. Y.

(Owing to an unseen error the story you are criticising was attributed to a female author. Most mysteriously the word Florence crept in where it should have been Donald. We will leave the answer to your letter for Mr. Donald Matheson who, we are sure, will appreciate your nice commendation of his work from a standpoint of literary value.—Editor.)

The Changing Eras of Humanity and a Plea for Socialism

Editor, AMAZING STORIES:

Ever since man has been on earth all he has done has been controlled and directed by the society in which he lived. He has passed through many stages. In all of them he was molded and formed by well defined influences about him. Human nature is not essentially bad. Neither is it good. Man is neither good nor bad. Upon entering the world he is merely a bundle of potentialities which may be developed in manifold directions.

Critics of society (Capitalist) today hold that it is fundamentally incapable of dealing with the relations of human beings, inasmuch as it has not developed the potentialities of the neither good nor bad individual in the right direction. They point to the criminals overcoming the prisons. In this wise they differ basically from the church which holds man's human nature is bad and by changing or altering his material conditions nothing is accomplished, for they say that it is like putting a pig into a parlor. He will only make a pigsty out of it. If I had space I could easily disprove this illogical argument.

I am writing all this to show that man's actions are governed by the forces prevalent in society and as these forces are constantly changing so will his actions change. Every system of society contains the seeds of its own destruction. Just as slavery gave way to feudalism so did feudal society contain the element which was destined to overthrow it—the bourgoisie. In the same manner did the present capitalist society create the weapon for its overthrow—the proletariat. The next system will in turn give way to another—and so on. Society is in constant flux and change. One hundred, five hundred and a thousand years from now, man certainly won't have over him the same capitalist system we live under today—but too many of your authors do not realize this. Socialism will in all probability (I feverently hope so) be the next great form of society and it will in time lead to another—anarchy; for as socialism does away with the causes that make for wrong doing, crime and corruption, as socialism will tear down the miasmic, fear ridden society of today, the generations born into this world under socialism, not coming into contact with the evils in capitalist society will have no conception of them and so will be easily molded into rational, good human beings who will need no restrictions, laws or government as we know them today—hence anarchy.

The point is this. Science fiction through AMAZING STORIES attempts to portray the future behavior of man. Let it do so more effectively by studying society, its changes, its effect upon human nature, the different systems of society to come, which will be the stage for man's future behavior. Let us have stories about socialist worlds, the struggles that will surely take place for it in the future, or stories of fascism and the suppressed proletariat who will rise in a blind fury to end its cruelty.

I am one who looks forward—I believe in progress and am trying to do my part to combat reaction. So too, I hope is AMAZING STORIES. There are definite forces in society today involved in a mighty struggle about issues that are clear cut and basic. What with the Austrian crisis, Nazi (Fascist) Germany, Soviet Russia, Fascist Italy, Imperialist Japan, Powerful England and our own stronghold of Capitalism, America—all antagonistic elements mixing in a bloody broth of hate and fear to arrive at boiling point and burst into—who knows? —the 'Iron Heel' of Jack London's novel (Fascism)—socialism—or chaos and dark?

I wish more of your authors would recognize these circumstances, so pregnant with possibilities and write accordingly.

I have on hand several thousand science fiction magazines and books—among them complete sets of AMAZING STORIES and Quarterlies from the first issue and some Annuals. I will send a complete list and prices on receipt of a

postage stamped and addressed envelope.

Arthur Berkowitz,
1375 Grand Concourse,
New York City, N. Y.

We have another letter of advice from a correspondent who claims to look forward and to believe in progress and who wishes to combat reaction. There are a great number of people in this country who believe resistence to progress as it is understood today would be more effective than the combating of reaction. The old Democratic doctrine was that "The Best Governed People Are the Least Governed." There's a good deal of merit in the proverbial advice to "let well enough alone."—EDITOR.)

Reprint Quarterlies Asked For—The Small Size Commended

Editor, AMAZING STORIES:

I have a few comments to make about AMAZING STORIES and hope they will find their way into "Discussions."

SPACE TRAVEL:

Why, Mr. Editor, must a man in your position deny the possibility of interplanetary travel? I would like to point out your own words on page 957 in the issue of January 1931, third line from the bottom of the page.—"It certainly is dangerous, as you say, to pronounce things to be impossible," etc. Also your comment on Mr. Schumpf's letter on page 91 of the April 1931 number.

REPRINTS:

Hurrah! Although I have already read most of the ones you have recently printed, I am glad to see one "mag." going in for them in a big way. Give us more reprint Quarterlies, please.

COVERS:

After all, one gets tired of the many jointed machines and monstrosities that seem to habitually grace the covers of stf. mags most of the time.

SIZE:

I must again point out some of your own words. In your answer to Mr. Newton's letter on page 954 of the January 1931 number regarding a reduction of size, you say, "We feel that that would impair its appearance and might put it in a class where we would be sorry to see it." And on page 92 of the April 1931 issue in answer to Mr. Torrance, "We have not the least idea of making AMAZING STORIES a smaller magazine," etc. I think the small size is O. K.

STORIES:

They can't be beat and that's the main thing. In closing I would like to add my plea to that of Mr. Miller for more of John Taine's stories both old and new.

Arthur Jones, Jr.
4568—9th Avenue,
Sacramento, Calif.

(The opinion of the staff of this magazine is that there is little fluctuation, that the issues are practically of uniform merit and that it is a matter of the personality of the reader how the stories are taken. The 125th Anniversary of the Birth of Edgar Allan Poe, which has just been celebrated, was marked in our columns by specimens of his work, yet our readers vary in their views on the Poe stories, some liking them and some not liking them.)

A Protest Against Reprints

Editor, AMAZING STORIES:

I beg of you do not publish any reprints in your regular monthly magazine.

To do so would be utterly unfair to all your old subscribers who have read these stories before, and in many cases still have them in their collection.

For example, I myself have a complete file of AMAZING STORIES from Volume 1 Number 1. Therefore if you publish any reprint that has hitherto appeared in AMAZING STORIES you will be forcing me to pay twice for the same story.

The correct thing to do is to publish a quarterly with nothing in it but reprints. Then all your readers of recent date may buy this quarterly, and we old readers will not have to.

It may interest you to know that I consider the Skylark stories, the best Science Fiction stories ever written.

Carroll Hamlin,
360 South 14,
Salem, Oregon.

(We do not all consider that you are outside your rights in protesting against reprints, but there is a definite demand for them among those of our readers who do not possess a full set of AMAZING STORIES. If you will look at the first year of AMAZING STORIES, we think you will be surprised at the multitude of reprints which were given and we get requests in this office from readers who want some of the earlier stories reprinted. Of course your protest does not apply to reprints from other sources than AMAZING STORIES.—EDITOR.)

A Most Encouraging Letter and a Hard Worked Staff Need a Little Appreciation

The Editor, AMAZING STORIES:

Since the first issue of AMAZING STORIES I have been a constant reader of science fiction magazines. I have followed the steady rise and fall of several magazines of this type. It has been a pleasure to note that "A. S." has maintained a regular advance to the top of the pulp magazine field, as well as keeping at the top of its own special field.

Several years ago I entered into one of the eternal debates raging about the "time controversy." After filling several pages with my execrable "Spencerian" and forwarding it to the editorial offices I anxiously awaited the publication's appearance on the newsstands.

You can picture my gratification when I saw my efforts in print, it was the first time such a thing had happened. Since then much of the thrill of seeing my name in print has disappeared. But name or none I do hope that you publish this outburst. It is the flood that comes pouring out once the gates have broken down.

My letter will be rambling; there is much to say. But I am writing everything sincerely. I do not think that the same thing can be said of all whose letters which are found in the "Discussion" department. I always read that part of the "mag" before I do the fiction, and it strikes me that many—yes—most of those contributing are doing so for one of two reasons. Namely: to see their names in print or to vent some of the pettiness that seems inherent in so many of the human race. So many letters seem to be filled with destructive criticism and so few with constructive criticism. It must be quite a difficult proposition for you to take some of the comments "on the chin" and make believe that you like them.

It was quite an improvement when you reduced the size, although it did cheapen the magazine in appearance. When I say improvement, I am talking only about the convenience of the size. The paper—well it's a pulp magazine now, so I presume I can have no criticism there.

It was an excellent idea to delete the subheadings. They were annoying, to say the least.

I would improve the book review section. It is of interest to those who read that type of story. And a motion picture review department could be added when pictures of the scientific fiction type are on the screen. It is quite a victory to those of us who have upheld this type of fiction to be vindicated by such pictures as H. G. Wells' "The Invisible Man."

There is one thing that makes my blood boil. And that is the faultfinding of some of your readers with Leo Morey. As I stated, I read all of the science fiction magazines, and none of them have an illustrator to compare with him. I note that many compare him with Paul to the former's disadvantage. I wonder how many of them know anything about magazine artistry. Paul is good—admittedly so—on machines only. His animate figures are stilted and out of proportion though. Morey, while very slightly excelled in the mechanical drawings, is so far above Paul in his drawings of humans, animals, plants, etc. that comparison can hardly be made. I would put Morey very high on the list of magazine illustrators. His work compares very favorably with that of many famous artists doing work for the class magazines. And I speak from experience and from having heard the comments of others. Morey can portray the unusual with a vitality that can be found in few artists' work. And his imagination keeps within logical bounds.

It was a disappointment when you combined two of your issues, but I can readily see the reason for it having been done.

Please don't cheapen the magazine by a succession of serials. If you have a long story—print the whole thing in one issue, or if necessary in two issue; but three or four—no! It is a nuisance to have to wait two or three months to complete a story. And you defeat your own purpose because readers become dissatisfied. A long story in one issue with one or two or more short stories should satisfy the most critical.

Reprints? Yes! Of the "Skylark" stories only.

Keep up the QUARTERLY, and "push" it more. It should be a financial success, but I doubt if all your readers know such a thing exists.

I am not going to enter any of the controversies now going on. I do not believe in the possibility of time travel, but—they make interesting reading so—. Inter-dimensional travel? Bah! And usually cluttered up with a lot of uninteresting drivel. Keep the scientific element in your stories, by all means, but keep out the would be "ultra-scientific" that has a tendency to appear and bore the reader with a lot of theoretical nonsense that any high school student knows is impractical and untrue.

Use rejection slips. Plenty of them. Just because a writer has written some good stories doesn't mean that everything he puts out is good. Some of these plots have been repeated so often that I can read one page of a story and write the end myself.

And speaking of good writers—what has become of Keller? of Verrill? and others of like quality? Take the Jules Verne reprints, etc. and put them in the scrap heap. That stuff is outmoded as much as the Model T Ford.

Your covers are O. K. Don't make any more foreign experiments. Morey is good enough for me.

Well, this effusion has gone on, long enough so I shall close with wishes for prosperity for 1934.

Michael H. Levy,
80 John Street,
New York City, N. Y.

(Your advice to the "Staff" is quite amusing. It sometimes seems that a person who does his best is not a desirable exponent of good actions. There always ought to be a little something ahead, so while we are thankful for your suggestions we humbly acknowledge that we fear that we are not doing our best, and hope to have the magazine improve year after year.—EDITOR.)

Back Numbers for Sale—Our Artists' Work Criticised

Editor, AMAZING STORIES:

Please publish this letter in your "Discussions" column because I have a number of Amazing and other science fiction back issues that I want to sell. I will sell the magazines very reasonably.

not to have too many serials, and tell Artist Morey to make his drawings clear and neat. I consider Paul, Marchioni, and Wesso as the three best illustrators of science fiction stories.

Charles Pizzano,
11 Winthrop Street,
East Dedham, Mass.

(We are perfectly willing to let our opinion be known about artists by placing Morey, who is doing so much work for us, in the same class with the other artists whom you mention. We hope that your letter will produce results.—EDITOR.)

An Excellent Letter from a Thirteen-Year-Old Boy—He Should Have Signed His Name

EDITOR, AMAZING STORIES:

This is the first time I have ever written to AMAZING STORIES to show my full appreciation for their stories, more so their serials. The serials are mostly excellent, except for one or two which end up rather tamely compared with their start. There are some fine new authors coming up and their stories are of better quality too. Those whom I consider interesting are: A. Hyatt Verrill—"Through the Andes," Neil R. Jones—"Moon Pirates" and W. K. Sonnemann—"Master Minds of Venus."

"The Master Minds of Venus" was an excellent story, but it didn't seem quite complete. I think the ending was a little too abrupt for a good finish. It needed to go on farther so as to make the story fuller. "Through the Andes" is another wonderful story of exploration and scientific knowledge combined into a thrilling serial by A. Hyatt Verrill. Harl Vincent's stories are good, but many are of the same type. "The Lost City" was another knock-out with me. It was an absorbing tale of ancient history and modern science. "Triplanetary" was also a good story of interplanetary communication. Its end was a little too tame for its beginning.

I have said enough for the present and I know I shall always want to read your magazine from the Editorial to the last page. I am thirteen years old and hope to go on reading till I am 100 years old.

R. B.,
Saskatoon,
Sask., Canada.

[One of our letters, the reader will perceive, is from a girl college student. In this letter we are most amiably criticized on our efforts by a boy (we presume it to be). He speaks of the end of a story being a little too tame for its beginning. He is to be congratulated on this criticism as it indicates a very good analysis. A weak ending is precisely one of the things we have to watch for in our reading of submitted manuscripts. We shall hope to hear from him again. He should sign his full name to his letters to magazines. They will not be published if he does not wish it done.—EDITOR.]

Coming Features

"By Jove!"
by Dr. Walter Rose

"Uncertainty"
by John W. Campbell, Jr.

"Mother World"
by John W. Campbell, Jr.

"Kingdom of Thought"
by L. A. Eshbach

"The Maelstrom of Atlantis"
by Joe W. Skidmore

"The Emperor of the Sahara"
by Fletcher Pratt

These are but a few of the many outstanding features that will appear soon in AMAZING STORIES—the aristocrat of science-fiction magazines! Make sure you get a copy every month!

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What to Allow a Lover to do
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Birth Control Chart
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Sexual Slavery of Women
Essentials of Happy Marriage
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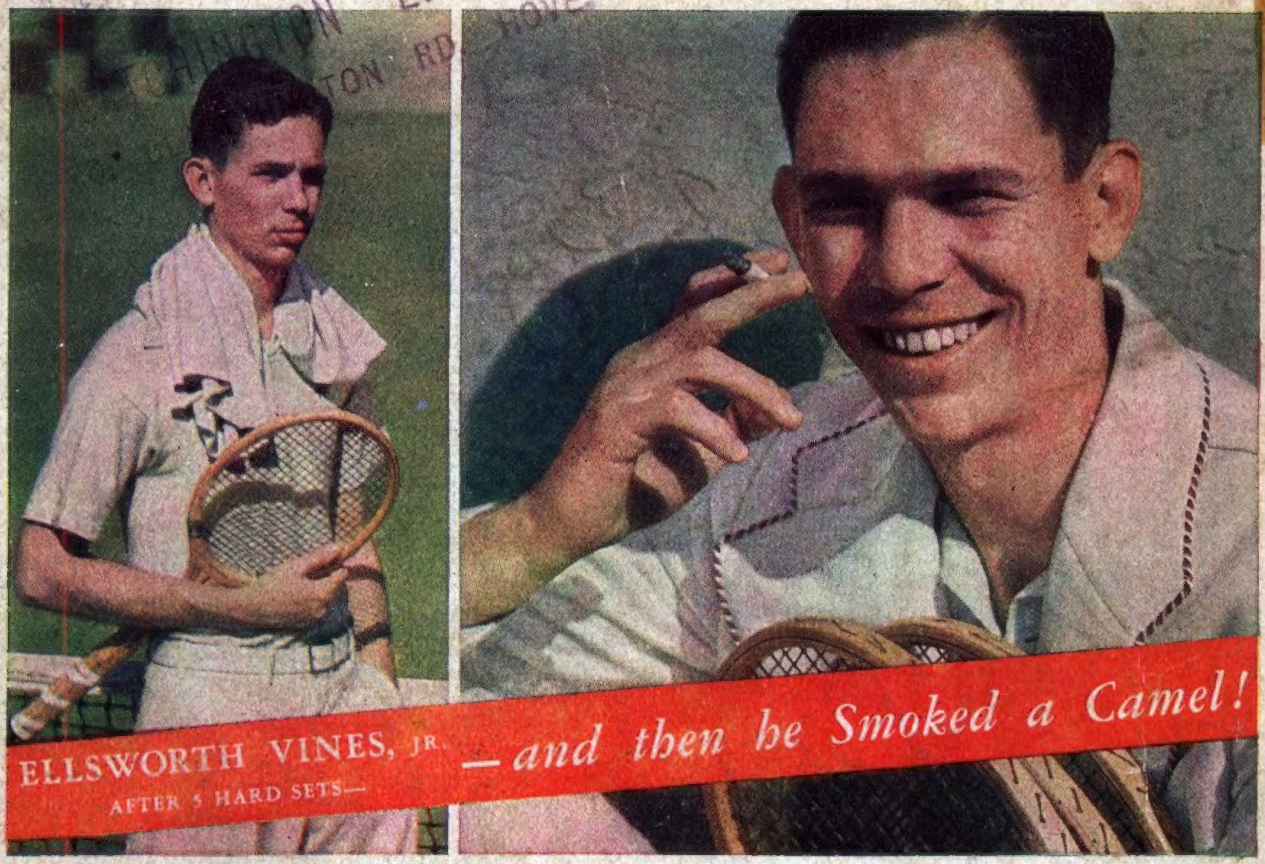

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